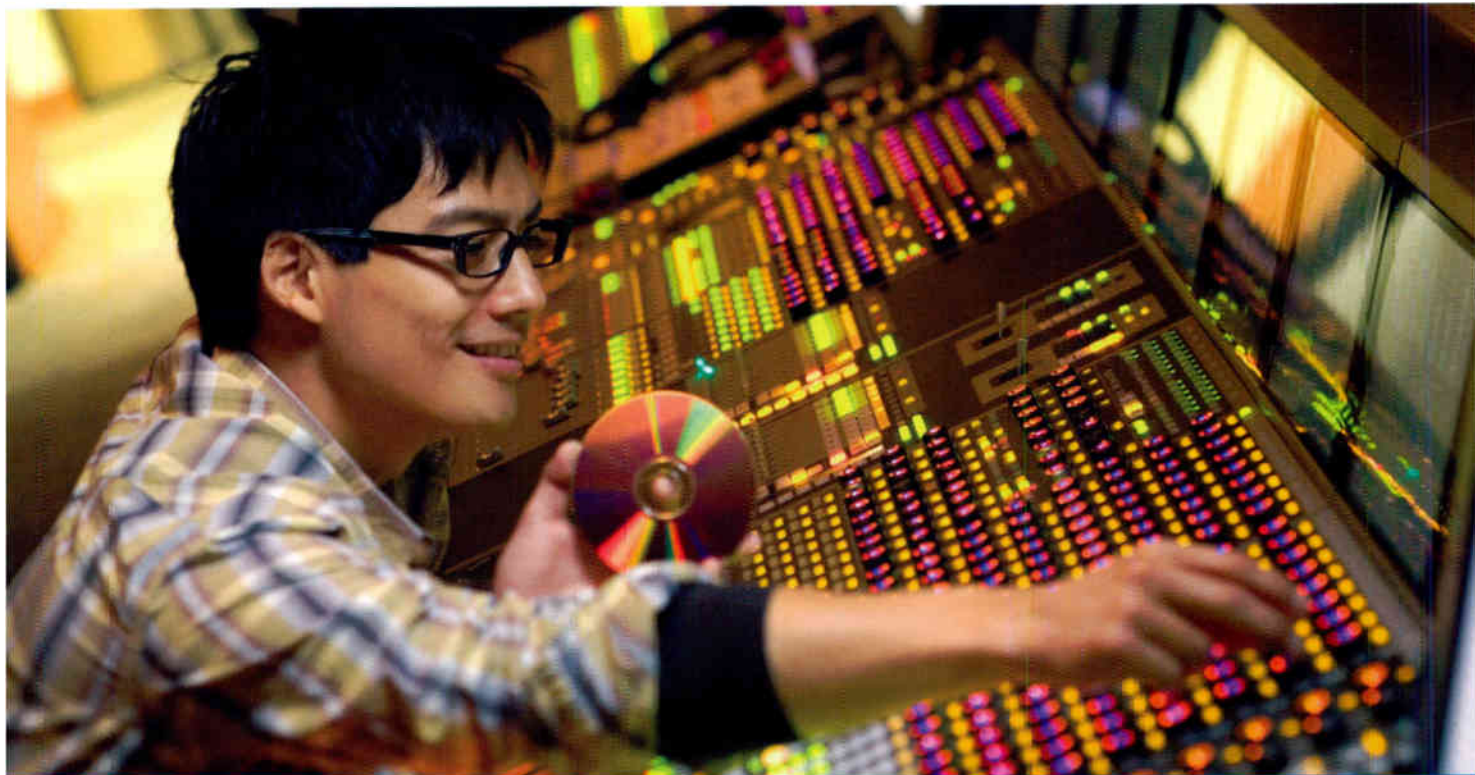


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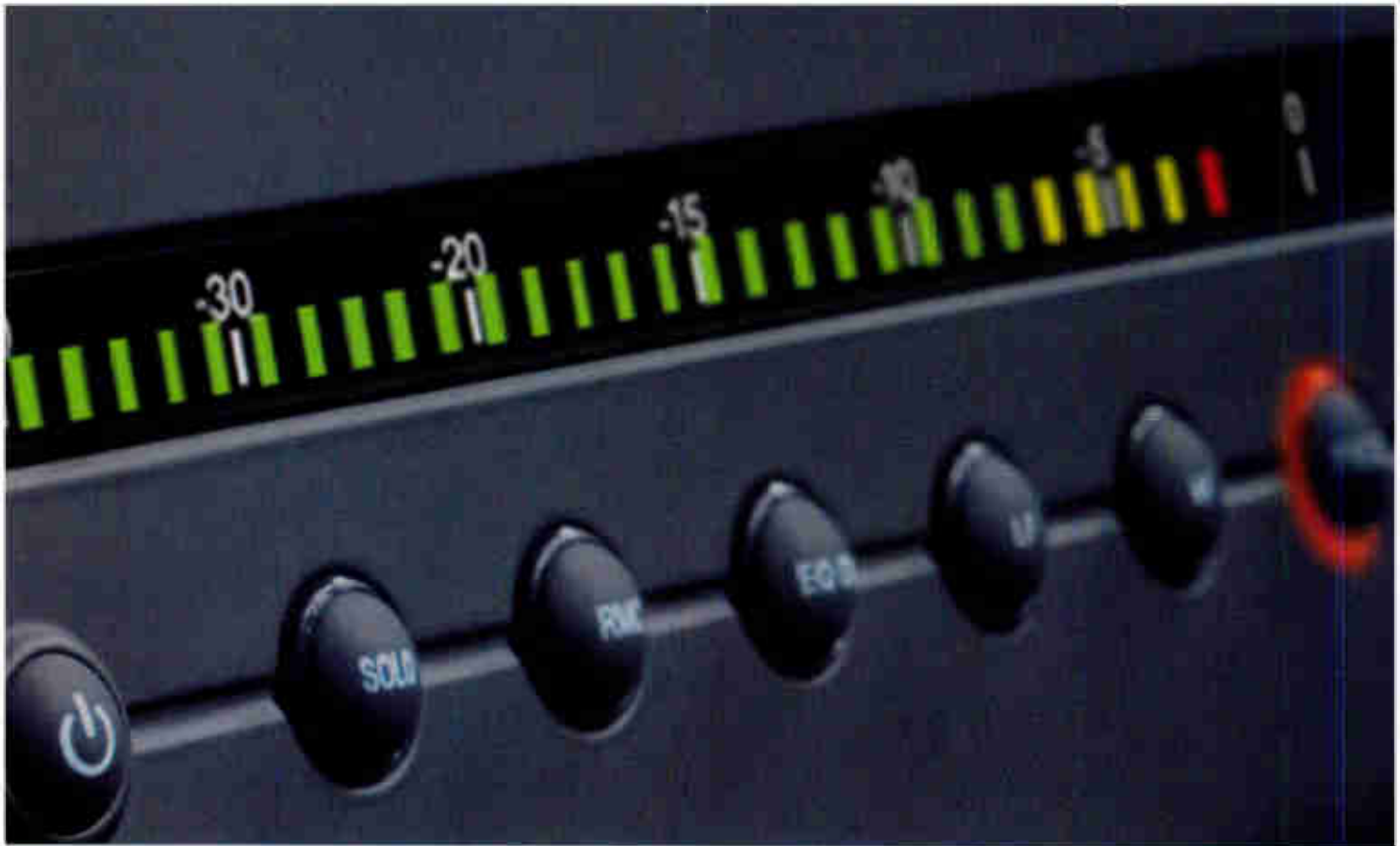


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The Toby Keith Big Throw Down II tour audio crew. L-R: Ryan Reynosa, Monitor tech; Russell Fischer, System Engineer; Dirk Durham, FOH engineer; Earl Neal, Monitor Engineer; John Brawner, System Tech.

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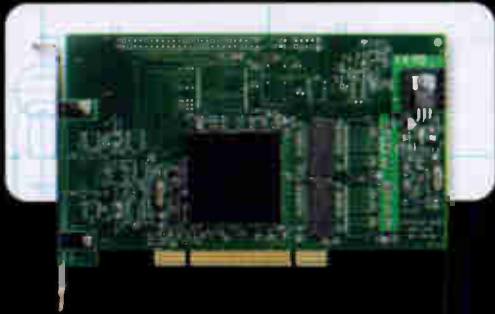
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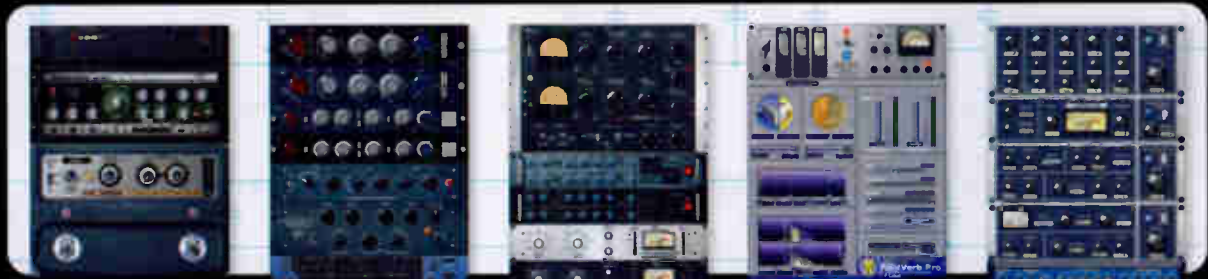


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World Radio History

MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION
OCTOBER 2006, VOLUME 30, NUMBER 10



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On the Cover: Talking House Productions (S.F.) is essentially a producer's collective built to develop local talent. Designed by John Stork of WSDG, three control rooms, including the main SSL 9k room and two Digidesign ICON rooms, surround a central live room. **Photo:** Robert Wolsch. **Inset Photo:** Tim Brown.



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To find the recording limits of Apple's flagship laptop with the newest version of Logic, *Mix* technical editor Kevin Becka takes the MacBook Pro out for a "stress test," using the system for a live recording of a five-piece rock band.

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The San Francisco Bay Area has, from the birth of the industry, been a hotbed of videogame production, employing hundreds of professionals dedicated to a game's audio needs. Whether it's coming up with original sound effects or creating a new videogame language, audio is becoming as instrumental in a game's success as the visual.

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172 The 11th Annual Mix L.A. Open

Each player's shot was a hole in one at *Mix*'s annual golf tournament, as all of the event's proceeds benefit hearing health and awareness charities.

100 AES New Products Guide

Check Out Mix Online! <http://www.mixonline.com>

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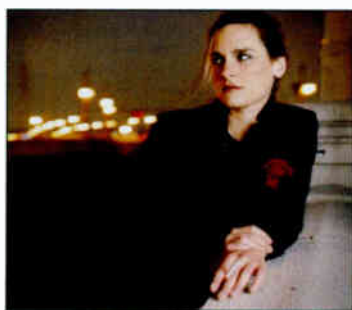


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World Radio History





MIX[®]

Welcome to AES SF— Just Don't Call it "Frisco"

If you're one of the fortunate members of the pro audio community attending this month's AES show, welcome to San Francisco. If you want to blend in with the locals, just refer to the town as "The City," and you'll be right at home. There are a lot of great cities, and such a nickname might come off as haughty, but there are a lot of reasons why the San Francisco Bay Area is special, especially to those of us who call this place home.

From the early days of the Spanish missionaries through the wild times of the Gold Rush and Barbary Coast and up from the ashes from the earthquake/fire a century ago, San Francisco has a long history of thinking differently, and that continues to this day. This is an area of individualists and thinkers and artists who have the ability to see great things beyond what others perceive as boundaries.

We're definitely Californians, but distinctly not Ellyay. We're Pixar and Lucasfilm and Coppola, but not Hollywood. We have beaches, but here "Baywatch" means watching the evening fog roll in under the Golden Gate. We're Silicon Valley and Napa Valley. We're Chinatown and North Beach Bohemians. We live in grand painted Victorians and little boxes on the hillside. We're Google and Yahoo!; Apple and HP, too. We're the birthplace of acid rock and West Coast rap, the VTR and multitrack.

This special San Francisco AES issue celebrates some of that magic that makes this region so special. In a departure from our usual format, Bay Area Legends is a photo-essay salute to some notable residents who have made the audio world a better place. Local studios are on the build: We peek into Talking House Productions (featured on this month's cover), Asphodel Studios and Emmy Award-winning composer Scott Singer's project room. And our own legendary Blair Jackson delves into some of the hottest new videogame productions emerging from this area's gamesters.

Speaking of gaming, AudioNext is our new column by composer/engineer/game production authority Alexander Brandon, who each month will look at all forms of new media, from cell phone technology to satellite radio and, you guessed it... games. He's sharp and has a lot to say.

And yes, we have our annual AES New Products Guide for those who just can't get enough technology.

AES is right around the corner, and from all indications, this is going to be a most memorable show, with nonstop activities and fun for all in our favorite city. If you're in town during AES, drop by and visit us at booth #1526. We'll be hosting online blogs throughout the show, so stop by and add some of your AES experiences to share. We'll also be posting Vlogs, nightly news updates, blogs, Webcasts and more at www.mixonline.com. And we'll follow it up with complete post-AES highlights online and in next month's *Mix*.

P.S. You might notice this month that there are two *Mix* covers for October. For the AES convention issues and on newsstand, you will see the SSL 9000K room at Talking House Productions, San Francisco. Subscribers have received the Talking House live room. Look for more in the future.

See you in The City!

George Petersen
Editorial Director

EDITORIAL DIRECTOR George Petersen gpetersen@mixonline.com
EDITOR Tom Kenny tkenny@mixonline.com
SENIOR EDITOR Blair Jackson blair@blairjackson.com
SENIOR EDITOR/FEATURES Sarah Jones sjones@mixonline.com
TECHNICAL EDITOR Kevin Becka kbecka@earthlink.net
MANAGING EDITOR Sarah Benzuly sbenzuly@mixonline.com
ASSISTANT EDITORS Barbara Schultz bschultz@mixonline.com
 Matt Gallagher mrgallagher@mixonline.com
LOS ANGELES EDITOR Bud Scoppa bs7777@aol.com
NEW YORK EDITOR David Weiss david@dwards.com
NASHVILLE EDITOR Rick Clark rmburke@mac.com
FILM SOUND EDITOR Larry Blake swelltone@aol.com
SOUND REINFORCEMENT EDITOR Steve La Cerna
CONSULTING EDITOR Paul D. Lehman lehman@pan.com
ONLINE AUDIENCE DEVELOPMENT MANAGER Tami Needham
tneedham@prism2b.com
CONTRIBUTING EDITORS Michael Cooper Heather Johnson
 Eddie Ciletti Gary Eskow Barry Rudolph

SENIOR ART DIRECTOR Dmitry Panich dpanich@prism2b.com
ART DIRECTOR Kay Marshall kmarshall@prism2b.com
ASSOCIATE ART DIRECTOR Lizbeth Heavren
PHOTOGRAPHY Steve Jennings
INFORMATIONAL GRAPHICS Chuck Dahmer

SENIOR VICE PRESIDENT Pete May pmay@prism2b.com
PUBLISHER Dave Reik dreik@prism2b.com
ASSOCIATE PUBLISHER Erika Lopez elopez@prism2b.com

EASTERN ADVERTISING DIRECTOR Michele Kanatous mkanatous@prism2b.com
NORTHWEST/MIDWEST ADVERTISING MANAGER Greg Sutton
gsutton@prism2b.com
SOUTHWEST ADVERTISING MANAGER Albert Margolis amargolis@prism2b.com

CLASSIFIEDS/MARKETPLACE ADVERTISING DIRECTOR
 Robin Boyce-Trubitt rboyce@prism2b.com
CLASSIFIEDS/SPECIALTY SALES MANAGER
 Kevin Blackford kblackford@prism2b.com

MARKETING DIRECTOR Christen Pocock cpocock@prism2b.com
SALES & MARKETING COORDINATOR Clarina Raydmanov
craydmanov@prism2b.com
MARKETING & EVENTS COORDINATOR Jennifer Smith
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ONLINE SALES AND MARKETING DIRECTOR Samatha Kahn skahn@prism2b.com

DIRECTOR, SPECIAL PROJECTS Hillel Resner hresner@prism2b.com

VICE PRESIDENT, PRODUCTION Lisa Parks lparks@prism2b.com
GROUP PRODUCTION MANAGER Melissa Langstaff mlangstaff@prism2b.com
PRODUCTION MANAGER Liz Turner lturner@prism2b.com
CLASSIFIED PRODUCTION COORDINATOR Jennifer Kneebone-Laurie
jkneebone@prism2b.com

VICE PRESIDENT, AUDIENCE MARKETING Jerry Okabe jokabe@prism2b.com

OFFICE MANAGER Lara Duchnick lduchnick@prism2b.com
ADMINISTRATIVE ASSISTANT Karen Carter kcarter@prism2b.com

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Sr. Vice President, Administration Eric Jacobson ericjacobson@prism2b.com

Vice President, Human Resources Kurt Nelson knelson@prism2b.com

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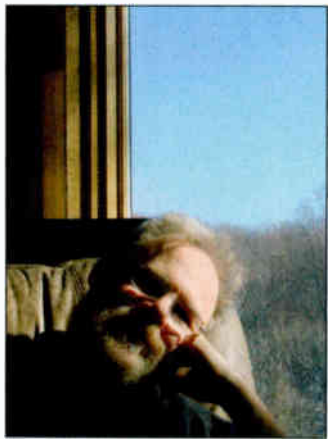


PHOTO: MERELYN DAVIS

ODE TO A FRIEND

I was sorry to read of the passing of Stephen St.Croix in the June issue of *Mix*. Stephen had already begun writing his column for *Mix* when I graduated from college in December of 1988. In those days, I somehow had time to read every issue cover to cover. As the years passed, I spent more time engineering and less time reading [*Mix*], although I always made time for "The Fast Lane." It educated me, excited me, made me work harder, made me laugh and, of course, pissed me off—at manufacturers, at record companies, at consumers, at Stephen and even at myself. Stephen made me better at what I do, and he will be missed.

*Russ Long
Nashville*

THANKS FOR THE KICK IN THE BUTT

Thanks for Stephen St.Croix's article "Life, Love and the Pursuit of More of It" (February 2006). I work in the recording industry: selling, instructing and supporting all the cool new software/hardware stuff. There was a point in my life when I was [so] obsessively excited about the technology, the possibilities and the power of the music that I've made it my living.

Lately, though, things have changed, and for many reasons, including the "ugly" side of the industry (illegal downloading/piracy, the demise of innovative radio), I started to ask myself why I was bothering to stay in an industry that I was no longer excited about. The article made me realize that if I don't like the way something I have always cherished is turning into, then bitching about or straight-up quitting the game isn't helping anyone. Thanks for helping me realize that I really am rather fortunate to have the career I have.

Anonymous

WHAT'S HOT, WHAT'S NOT

I am writing to congratulate you on another great issue and praise Stephen St.Croix for bringing out the human side of our equipment-focused lives and Paul Lehrman for his austere examination of the reality of making music for a consumer market (February 2006).

I would say in all areas of cultural pursuit, money (i.e., fame) has become the aesthetic for qualifying the merits of a work. Over the last several decades, who you are has become infinitely more important than what you do. I can overlook articles that cover hyped artists that are momentarily hot but will be forgotten within the year; after all, you need to sell magazines. Perhaps readers think if they follow the trend, they may somehow profit by it. I would say that *Mix* is caught up in the filtering process as much as any other media outlet.

You do articles on people who are popular because it reflects what is current in our culture, except you are not reporting on what machinery was used to make that artist popular. Are you reporting on how a group's album was mixed because your editorial staff loved the mix or because it shipped 2 million copies? If it shipped 2 million copies, how many were returned? How much did the label pay to market it?

*Todd Zimmerman
Studio 139*

THE UNSUNG HERO

I had the pleasure of working with David [Smith] at Sony Studios [August 2006 issue] for five years as a senior technician. My primary responsibility was SSL 9000 and later Neve 88R console repair to the component level. David was my supervisor John Williams' boss and his lab was next to John's office in the tech shop. David was extremely dedicated to audio excellence and regularly spent evenings and weekends working in his lab on new designs and modifications to improve existing equipment.

The console in Room 309 was designed by David (something your article didn't make clear, probably due to David's modesty) with Richard Boisits, who did all the drawings and PC board layouts to David's specs. Richard also assembled and tested the console with Marty Matyas, who contributed greatly to the mechanical and metal work design. Dominick Costanzo took over after Richard went to NBC in 2004. John Williams played a major role in the overall project management and procurement.

The console uses Massenburg ICs (and others) but is not a Massenburg- or GML-designed console. This project took several years to complete. Every circuit was painstakingly optimized for the absolute best possible performance. No corners were cut. No expense was spared. This console was built for the love of audio, not for mass production and profit. The result is the finest, cleanest mixing console in existence.

There is nothing like it at any other facility, anywhere. Unless Sony starts selling these consoles, no other facility will be able to emulate the Dave Smith Room. Nothing else commercially made equals its performance. It is simply not economically feasible. The mic pre's that David designed for it (Sony Studios has a couple of portable outboard versions) are in, my opinion, the finest, cleanest and most transparent I have ever heard, even at very high-gain levels.

Dave not only cared about audio, he cared deeply about people, too. He was the kind of person who would take time from his busy schedule to help others, even those who worked at other facilities. His passing is a huge loss for Sony and the audio community.

*Mick Oakleaf
Kampo Studios*

NOT SO FAST...

I am writing in regards to your March 2006 issue and specifically the article on Big House Sound ["Local Crew"]. In the first paragraph, there is mention that "Big House Sound is in talks with Austin Music Hall to handle its sound requirements." That is not the case. As COO of Direct Events and its affiliated venues—The Backyard, The Glenn at the Backyard, Austin Music Hall and La Zona Rosa—I am involved in all aspects of concert and event production. We have not been in talks with Big House Sound as a provider of service.

We currently have a relationship with another sound company, Miller Pro Audio, and are extremely pleased with their gear, service and expertise in sound engineering. I would appreciate a retraction of that statement. I feel this portion of the article has done a disservice to Miller Pro Audio.

*Barry M. Kohlus
Direct Events*

Send Feedback to *Mix*
mixeditorial@mixonline.com

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THE BEAUTY WITHIN

Surrounded by magnificent views of rolling hills, sunsets and wildlife, Banquet Studios' (Sebastopol, Calif.; www.banquetstudios.com) new digital recording facility is now online. It was designed to allow the inspirational energy of the outside to merge with the creative environment inside.

A full kitchen and lounge; LEDE control room; sizable main room with two additional isolation booths; a second control room for mixing and Final Cut Pro video editing; experienced staff led by Grammy-nominated engineer and producer Warren Dennis Kahn; Yamaha concert grand piano; fully digital automated Tascam console; a sizable amount of quality studio microphones; and two Pro Tools 32-track recording systems provide ample opportunity for music and album production, as well as commercials, narration, books on tape or other projects.



JANES GETS NARAS NOD

Producer/engineer/guitarist Roland Janes (pictured at right with Jon Hornyak, senior executive director of the National Academy of Recording Arts & Sciences, Memphis chapter, and whose credits include Jerry Lee Lewis, Roy Orbison and Charlie Rich) was honored by the chapter with four plaques at Sam Phillips Recording Services (Memphis), where he is studio manager and engineer. Three plaques were for his guitar work on Sun classics "Great Balls of Fire," "Whole Lotta Shakin' Goin' On," and Bill Justis' "Raunchy" (all Grammy Hall of Fame recordings) and a fourth for engineering the Grammy-nominated album *Electric Blue Watermelon* by the North Mississippi Allstars. In addition, Janes also ran recording facility Sonic in the 1960s and '70s.

PHOTO: DIANE DUNCAN



PETIT PRODUCES MCCLAIN

George Walker Petit recently produced a debut CD by multi-E Emmy Award-winning daytime TV actress Cady McClain (*All My Children, As the World Turns*). Titled *BlueGlitterFish*, the CD was engineered by Petit and Yvan Bing, and was tracked and mixed at Right Track/Sound on Sound in New York City. The project was mastered by Emily Lazar at The Lodge (New York City). Petit also played numerous instruments on the CD, including guitars, electric bass and percussion.

"This session was a bit of a departure from my 'norm,' if you will," Petit said. "I have been doing mostly jazz records as a producer/engineer for a few years, both at my old studio—walkerecordings, alas now closed—and at a few other rooms in Manhattan. Little did anybody know [McClain] has about 50 tunes and sings beautifully. Cady is self-releasing this project, using her own Website, www.cadymcclain.com, and a link on the ABC-TV site. She has also placed it on CDBaby and iTunes."



L-R: Yvan Bing, Cady McClain, George Walker Petit

NEW SERVICES

Nashville-based Runway Network (www.runwaynetwork.com/mastering) now offers mastering services for local and national musicians. Heading the division is mastering engineer Richie Biggs (pictured), who has worked in the local scene for more than 25 years as a tour crew member, as well as a live sound, studio and mastering engineer.



TEC AWARDS UPDATE WILL LEE TO HOST 22ND ANNUAL SHOW

Will Lee will host the 22nd Annual Technical Excellence & Creativity Awards, to be held Saturday, October 7, 2006, at the Hilton San Francisco. Lee, longtime bassist on *The Late Show With David Letterman*, is being brought back by popular demand after his successful debut at the 21st Annual TEC Awards, held in New York City last year. Presenters at press time include Greg Kihn, Ryan Hewitt, David Kershenbaum, Frank Serafine and Alan Howarth, among others.

Along with the 23 awards, remote engineer David Hewitt will be inducted into the TEC Hall of Fame and guitarist/composer Steve Miller will receive the prestigious Les Paul Award. Read more about Miller's career on page 60.

For ticket information, contact Karen Dunn at 510/985-3263 or visit www.acteva.com/booking.cfm?bevaaid=115215 to order tickets online. For additional information, visit www.tecawards.org.



ON THE MOVE

Who Paul Hugo, PreSonus executive VP

Main responsibilities: manage product development process, refine customer interface elements, build our brand by traditional and nontraditional marketing efforts, and assist Jim Odom (CEO, founder) in defining the direction of PreSonus.

Previous Lives

- 2001-2006, Sennheiser and Neumann worldwide relationship manager
- Sennheiser VP U.S. West Coast office
- Audio-Technica VP sales and marketing

The last great movie I saw was...*Crash*.

With almost 30 years in the audio industry, the most exciting moment was...meeting and talking with Nelson Mandela and working on his 46664 concerts to benefit AIDS awareness.

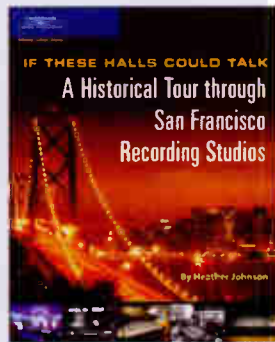
It was a similar feeling at the beginning and end of the Live8 concerts around the world. In both cases, I was responsible for coordination of Sennheiser support and was personally in the wings at the events. What a rush and what great causes.

Currently in my CD changer: I have lately become a major proponent of iPod Lossless. Generally, I'll argue the sonic merits of vinyl, but now that I have this new technology with relatively high fidelity, fully integrated into my car and I'm listening to everything—again. Macy Gray's *The Trouble With Being Myself*, the Dave Matthews Band's *Under the Table and Dreaming* and tracks from the Dave Holland big band disc. When I'm not in the office, you can find me...reinventing, rebounding, remembering, replenishing and recommitting with my wife, Karalyn.



BOOKSHELF

Mix contributing editor Heather Johnson has released *If These Halls Could Talk: A Historical Tour Through San Francisco Recording Studios*, in which leading Bay Area artists, producers, engineers and studio owners take readers on a guided tour through some of San Francisco's top facilities. To read an excerpt, visit www.out-word-bound.com. Thomson Course Technology, \$29.99. Note: Johnson will be moderating an *If These Halls Could Talk* panel discussion at the AES Convention on Saturday, October 7, 2006, from 12 p.m. to 1:30 p.m. at Moscone Convention Center.



INDUSTRY NEWS



Scott Burns

Aviom (West Chester, PA) co-founder Tom Costello has been appointed COO; Tom Knesel was promoted to national field sales manager. The company also announced these new hires: Kim Treanor, executive assistant; Rachael Morris, graphic artist; Mark Gutekunst, field applications engineer; Kaori Nijinsky, sales administrator; Roland Morris, PCB layout designer; and Nick Minnot, product tester...Charles E. Cuneo is Gibson Guitar's (Nashville) new COO...Scott Hanson was named

CFO of PRG (New Windsor, NY)...From Austin to Boulder, Colo., comes Jim Wilson, engineer at Airshow Mastering...Augmenting Harrison's (Nashville) sales team is director of sales Claude Hill...Audio post house RavensWork (Venice, CA) promoted Scott Burns to mixer...Sennheiser (Old Lyme, CT) news: David McNutt, industry team leader

for installed sound; Rachel Vaclavik, marketing communications specialist, Marcom division; Gregory Pizzi, graphics/new media project manager, Marcom division; and Eric Stubbert, sales manager, audiology...Westlake Village, Calif.-based TC Electronic appointed Mike Martin to national sales manager for MI/recording markets...Beyerdynamic (Heilbronn, Germany) adds Michael Kinzel, marketing/sales manager for Asia/Pacific markets...New distribution deals: Cadac (Bedfordshire, UK) appointed Sebastian Song for Singapore and Malaysia; Flyline Music AG (Switzerland) and Long & McQuade (Canada) pick up Crowley and Tripp Microphones (Ashland, MA); Digigram (Montbonnot, France) expands European distribution with Community (UK), Audio Systems (Switzerland), Ivamod (Croatia) and Media Chip (Portugal); Exhilo SpA (Milan, Italy) now represents EAW (Whitinsville, MA); Symetrix (Mountlake Terrace, WA) brings in Reptex International (Rockwell, TX) for Latin America (excluding Brazil, Argentina and Uruguay); and Tony Sawyer (Dubai, India) adds Telex Pro Audio Group (Burnsville, MN) in Africa and the Middle East.

Go beyond the printed page and log on to www.mixonline.com to get extra photos, text and sounds on these select articles:



2006 AES Coverage

Make sure you go to www.mixonline.com/aes to get a head start on AES with this year's AES New Products Guide, our very own AES Survival Guide, e-mail newsletters, blogs, podcasts and Tech Minutes from the show floor.



Mix. L.A. Open

Peruse additional photos taken from this year's golf tournament.



Local Crew: McCune Sound

Find out what else third-gen company owner Allan McCune has to say about the S.F. SR scene.



"Technology Spotlight": Fairlight

Editorial director George Petersen offers additional features on the new Fairlight Dream II.

NOTES FROM THE PRODUCERS & ENGINEERS WING OF THE RECORDING ACADEMY

LISTEN UP—AND TURN DOWN!

BY MAUREEN DRONEY

Often, when you ask an audio engineer what his or her most important piece of equipment is, the reply will be, "My ears!" It's a good answer; without great, trained ears, all the other accoutrements of recording are useless. After all, no hearing, no music appreciation, no music purchasing. Elementary, my dear Watson, right? So why do we seem so hell-bent on destroying our ears? From superloud sound at movies, concerts and clubs to snowmobiles, leaf blowers and the earbud-style headphones that we jam into our ear canals for hours at a time (creating, in essence, a compression driver right up against our eardrums!), the amazing and delicate mechanism of the ear is under assault. It may develop so slowly you don't know it's happening, but high noise levels, especially combined with prolonged listening, can cause hearing damage.

Thanks to studies by health organizations and testimonials by high-profile musicians, public awareness is growing and has led to some action. Apple's software updates for the iPod and Nano allow customers to set maximum volume limits. Sony includes a hearing-loss warning with its music players, and the influential Consumer Electronics Association has created a pamphlet, *Listening for a Lifetime*, for manufacturers to include in packaging. However, we are not hearing a lot about the problem from audio professionals. We've all worked with producers, either unaware or in denial, who seem to have a "notch" in certain frequencies due to years of monitoring loud—and bright—in the studio. I have a good friend who spent years punching in loud vocals with one ear turned to the monitors as he worked the tape machine remote placed to his side—guess which ear doesn't work so well anymore? Why does this happen?

Early in my career, I was lucky to have as a mentor the extremely talented—and no-nonsense—San Francisco Bay Area engineer Fred Catero. Fred had paid plenty of dues to learn his craft and had worked his way up to preeminence. On one of my very first sessions as an assistant, he taught me that the band needed to have the mains turned up loud when they came into the control room for playback. He also taught me that was a good time for the engineer to step out into the hall. Fred was not only practical about preserving his assets, he was confident and in-demand enough to set ground rules on a session. These days in our competitive field, many audio professionals not only don't want to talk about hearing loss, they don't want to say "no" to a client who's asking for dB levels that are just plain unhealthy.

Keith Olsen, another very talented and equally no-nonsense producer/engineer, offers these suggestions. Use earplugs during tracking when you're out in the room with the band (which is a place he recommends you be!). Okay, you might get a little hoarse from yelling all day—it's worth it. Make sure your control room doesn't "load up." If the room has so many reflections that you get frequencies canceling each other, then you'll have destructive interference and you'll tend to keep turning up the volume. Use headphones in the control room so you can control the level you hear when "louder" is requested. (Tell them you're checking the mix on the 'phones.) Use your engineering expertise to make the small speakers sound great! You'll get better mixes that way anyway. And use your expertise in psychology to convince your clients to turn down. After all, you're making music for the people who buy it, right? They're going to be listening at 85 dB or less.

So listen up and turn down. You've got a lot invested in your ears—protect them! ■

Maureen Droney is the executive director of the Producers & Engineers Wing of the Recording Academy.

CORRECTION

In the David Hewitt "Mix Interview" (September 2006), SIA Acoustics was incorrectly identified as SIA Software. Also, Remote Recording is the correct company name, and though Remote Recording has facilities in Pennsylvania, its headquarters is in New York City.

Mix regrets the errors.





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Talking House Productions

By Tom Kenny

Records are now tracked at a home in Malibu and mixed in a cottage in upstate New York. Scores are prepped on a laptop in Miami, brought to a Czech stage for live strings, then mixed and posted at a facility in London. Videogame programmers will likely never meet any of the dozen or more composers, effects editors and mixers who post their tracks to an FTP site. There's no question that ours is an industry in transition, especially on the production end. But it's still refreshing to hear that creative minds can come together in a single space and make music.

That's the thought behind Talking House Productions and its companion studios. Six producers—John Paulsen, chief engineer Pete Krawiec, pc munoz, Paul Ruxton, Stephen Smith and Marc Weibel—co-founded the company with former Seagate CEO and songwriter Steve Luczo. Each is responsible for bringing in projects; others contribute as needed, though the charter assumes and declares a shared vision: to develop local talent.

"The music scene in San Francisco is exploding right now," says Paulsen, company president. "So many talented bands and songwriters are giving it a go, and the club scene is growing again. There are artists here looking for someone who believes in their songs and has a philosophy that content is king, that content takes time and nurturing and ears and support to develop, and that artists deserve to be treated like partners for the long-term."

It sounds a bit like A&R of yore, and it is. But then there is so much more, from videotaping sessions for vlogs (and straight-up blogs) to direct promotion via cell phones to traditional film and TV sync licensing. They do business, they do art, they do promotion, touring—the whole bit. Though they have a record label, they don't want to be a label, so they form distribution "partnerships." They are all well-versed in D.I.Y. marketing and support. And they know new media. But for two years, they had no studio, so they worked primarily out of John Lucasey's Oakland, Calif., facility, Studio 880, a home they were grateful for while the Walters-Storyk Design Group laid out plans for Talking House.

John Storyk, principal designer, got involved early through connections with Luczo

and Jack Leahy, a friend and owner of Crescendo! and the late Russian Hill Recording, who was also a mentor and colleague of a few of the producers. "Because of the way they wanted to work, we eventually found an appropriate warehouse-style building with very few columns and excellent height," Storyk says. "Additional height and daylight was created by adding a 10-foot clear-story skylight to the live room. The initial program

called for multiple control rooms with a single, large live room and iso booths, where every room could see at least 80 percent of the other rooms. Critical to the acoustic design was that all control rooms be working at the same time. We had done this before, but it's not easy. There is lots of glass and tremendous demands for isolation. The basis for construction is that all rooms are separate 'split concrete slabs,' with wire management mostly in below-floor troughs. Room-to-room isolation is ensured with triple-wall construction, including sand-filled concrete block partitions. Extensive predictive auralization and reflection analysis was performed numerous times, allowing us to 'listen' to the rooms from the calculated impulse responses before they were built."

The two-story building is actually split in two, with a little less than half devoted to a gallery space for art exhibitions and private quarters. The studio side, however, is all business, with Studio A housing an SSL 9000 K purchased from the defunct Hit Factory through broker PAD. On each side, and beginning the 180-degree arc, are two good-sized iso booths, flanked by opposing and identical Digidesign D-Command ICON rooms. Genelec 8050As provide 5.1 monitoring throughout, augmented by 1035B mains soffit in the SSL room. Three Dolby Lake processors manage the monitoring systems, the first we've heard of in a studio situation. Each room has 72 channels of Pro Tools HD,



From left, in Talking House Studio A: chief engineer Peter Krawiec, engineer Justin Lieberman and producer Paul Ruxton

easily shared for big projects, and they still love 2-inch tape. Even the large, open Gallery is wired for tracking and playback.

"Above all, we were looking for flexibility and 'nimbleness,'" says Paulsen. "We can go old-school with the SSL onto 2-inch tape; we can dump to Pro Tools or begin with Pro Tools. We place a real emphasis on scoring here—it's easily half of what we do. We can start with an improvised jam in the live room and add textures in our Pro Tools and MIDI-focused rooms. We can compose in MIDI, on laptops or in the rooms for two days, then add that one critical live element. We can do any one of these or all of them seamlessly because all the rooms are tied and work together. I don't think it's strange that the artistic side of us believes it's crucial to have a vintage B3, Rhodes and Wurlitzer, and also crucial to have the new Muse Receptor. The gear is a perfect complement to the style we have as producers and the way the studio was set up."

The Talking House team knows they aren't reinventing the wheel here in terms of production style or artist development. But what's different between Then and Now is the sheer number of outlets and opportunities for music to find its way out into the world. The model is in transition. There are no rules. But Talking House is definitely now in the Game.

For a look at Storyk's floor plans, full design and build credits, and the complete Paulsen interview, visit mixonline.com. For more on Talking House, visit www.thpro.com. ■



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"The Monitors Allen built for my studio are simply the best large speakers I have ever used and relate perfectly in character and balance to the small speakers I use."

• **Jon Lind:** Senior Vice President Artist & Repertoire
Hollywood Records/Disney

"At last the OWR Monitor system we installed in our executive conference room provides accurate and dramatic playbacks for our weekly A&R meetings. It also makes artists playbacks of the new albums something to look forward to."

• **Nick Rasculinecz:** Engineer & Co-Producer
Foo Fighters

"The monitors Allen built for Dave Grohl's private studio, which we used to mix the latest Foo Fighter's album on, are very impressive. They're incredibly musical even at the loudest levels."

• **Rob Cavallo:** Senior Vice President of A&R/Producer
Warner Bros.

"The OWR Big Monitors are the only ones in existence that I trust. I feel like I'm getting the full impact of all the frequencies that I've recorded but without any hype. They really are the best monitors anywhere. Allen Sides' designs, studios, and sonics never cease to amaze me."

• **George Massenburg:** Engineer/Producer
/Designer

"Allen and I have been friends and at times competitors in the studio business over the years. We both share a passion for accurate, high definition speakers that have the ability to sound big and impressive for artists when it's required. The OWR monitor system squarely hits that mark."

• **Leslie Ann Jones:** Skywalker Ranch Scoring
Head of Operations

"I can't think of any large monitor system I'd rather have in Skywalker Scoring Stage than Allen's Ocean Way Monitors."

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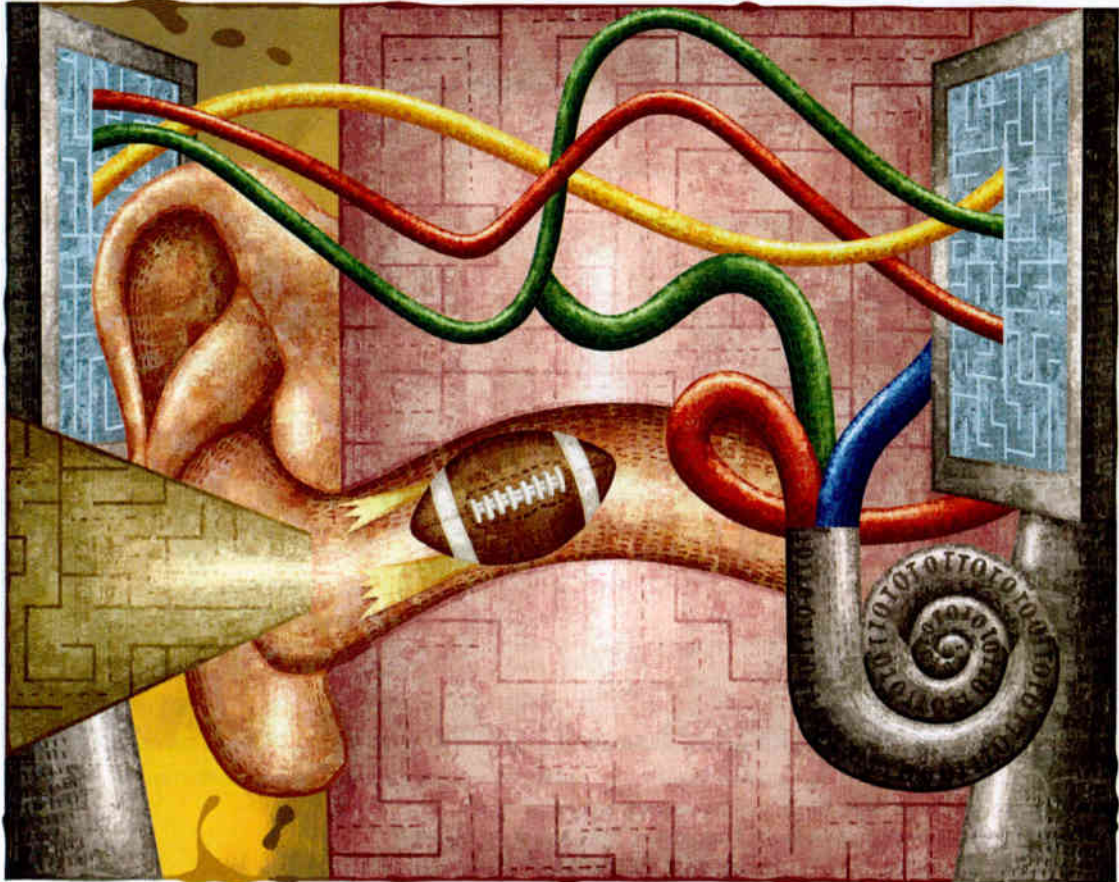


ILLUSTRATION: RICHARD DOWNS

In last month's column, I looked at some of the issues involved in putting together surround mixes for live sports events through the eyes of Phil Adler, an old friend of mine who's been doing freelance sports mixing for 18 years; Ron Scalise, audio project manager for remote operations at ESPN and now ABC; and Jim Hilson, senior broadcast audio specialist at Dolby Labs. As we saw, it's hard enough getting the mixes to make sense at the site, but this month, we look at what happens and what can go wrong when the sound gets sent on its way.

In 1999, the folks at Dolby Labs came up with a way to handle surround audio that fit the way broadcasters—well, most of them—wanted to work, and overcame one of the major obstacles that stood in the way of wide acceptance of surround remote broadcasting. Very simply, the problem was, says Adler, "There's no way to handle six discrete channels out of the truck, through the routers and over the broadcast path. That's why they came up with Dolby E."

Dolby's Hilson adds, "Most videotape recorders only have four channels of audio. To do surround, we need six channels, or eight if we also want a separate stereo mix at the same time. So Dolby E was developed as a way to

get 5.1-channel mixes from point to point."

Dolby E is a method of coding up to eight audio channels onto a single AES digital pair. The AES signal is 20-bit/48kHz, which allows room for metadata. Its data rate is 1.92 Mbps. It's a lossy codec, but according to Hilson, "It's good for up to 10 generations of encode/decode. It's not as lossy as Dolby Digital. How many you can do depends on the complexity of the signal: Dialog can go several more generations before you notice it, but symphonic music might sound a little weird sooner. In a typical situation, you're going from the truck to the network, which takes it apart and adds commercials. Then they send it to the affiliate, who also takes it apart and adds commercials. Then they send it to the transmitter, so you're looking at five or six generations, maximum."

Another advantage to Dolby E is that it is designed from the ground up to be video editing-friendly. "It's built on frame boundaries," says Hilson, "so it can be stored on tape in the video signal and edited right along with the picture. There's a one-frame delay at encode and decode, but if all you're doing is a cuts-only edit, the audio is in the right position. If you're doing a lot of production, then when you

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World Radio History

do the layback, you just offset the audio.”

Yet another advantage is that the metadata automatically follows the signal as it is encoded and decoded. Among its functions are to keep the channels separate and to convey compression profiles and normalize dialog levels among different sources, such as programs and commercials.

A signal path from a remote truck at a sports event might go like this: The truck generates a 1.5-Gigabit/second uncompressed HD video stream. When it leaves, the signal is compressed as it is fed through an Asynchronous Serial Interface (ASI) to a satellite or fiber-optic network, usually taking the data rate down to between 45 and 60 Megabits/second. Most ASI systems allow two audio “services” to be carried with the video signal. One can be Dolby E and the other is often a 2-channel feed, compressed at the truck using MPEG-2, which takes it down from 1.536 Mbps to 384 kbps, the same data rate as the audio on a Dolby Digital signal going to the home viewer.

At the network, everything is decoded: The video is turned into Serial Digital Interface (SDI) or HD-SDI, the forms in which it can be distributed around the building, and the audio is converted to PCM. SDI video

lets you embed up to 16 channels of audio, and some networks take advantage of this, but others put the audio on a separate cable. Commercials and other network feeds are added to the stream, and then it goes out again through an ASI on its way to the network’s affiliate stations.

Now let’s jump to the viewer’s set. When it ends up there as part of an HD broadcast, the audio is 384 or 448kbps Dolby Digital. Audio mixers like Dolby Digital. “It is really discrete,” says Adler. “Nothing goes into a channel unless you put it in that channel.” Viewers like it too: “The consumer sees the ‘DD’ light on his \$10,000 home theater system,” adds Scalise, “and he’s happy.”

But what goes on during the time between when the signal arrives at the network and when it goes out over an individual station’s transmitter varies a lot, depending on who’s doing it. Says one observer, “Everyone wants to have their own little thing that sets them apart from everyone else.” The on-air networks use ASI—over satellite or fiber—to pass the programs on to their affiliates. But that’s about all they have in common.

CBS, when it distributes the video signal, embeds the Dolby E audio with the video, which the stations can then pull apart and

encode into their HD transmissions. At Fox, however, the ASI signal going to the affiliates has already been down-converted to a standard HD video broadcast signal (19.4 Mbps)—a “transport stream”—which *could* be turned around by the affiliates and transmitted without further conversion. But it’s not quite done that way. First, each station adds local content using a “stream splicer” and then sends the signal to the transmitter.

NBC’s ASI stream, on the other hand, uses a higher 35Mbps bandwidth, which allows it to include eight discrete audio channels in the form of four MPEG-2 pairs. The individual stations decode the audio as PCM, and then can choose which channels they want to include with their video transmissions—some streams, for example, only use the stereo feed and stations on the East Coast might want different audio content from those on the West Coast.

ABC is an interesting case: It currently doesn’t use Dolby E at all (although until recently, its truck feeds for *Monday Night Football* were in Dolby E). A large part of the reason is that the network went on the air with HDTV and surround audio before Dolby E was developed. Working with

—CONTINUED ON PAGE 180

GT PROFILE

Greg Ladanyi and his GT microphones, ViPRE and Glory Comp

WHAT HE’S DONE: Produced and/or engineered some of the biggest records in rock and pop history, by artists including Toto, Jackson Browne, Fleetwood Mac, Don Henley, Jeff Healey and many more.

WHAT HE’S DOING: Working with a great band out of Baton Rouge called The Terms.

WHAT HE USES: Groove Tubes’ ViPRE™ tube mic preamp, Glory Comp™ tube compressor, and all of GT’s studio mics.

WHAT HE SAYS: “Nothing comes close to capturing my passion for sound than all the GT tools I use. For all the most important vocal and instrument sources, my GT mics, ViPRE mic pre, and Glory Comp tube compressor are what I turn to every day in the studio.”

Greg

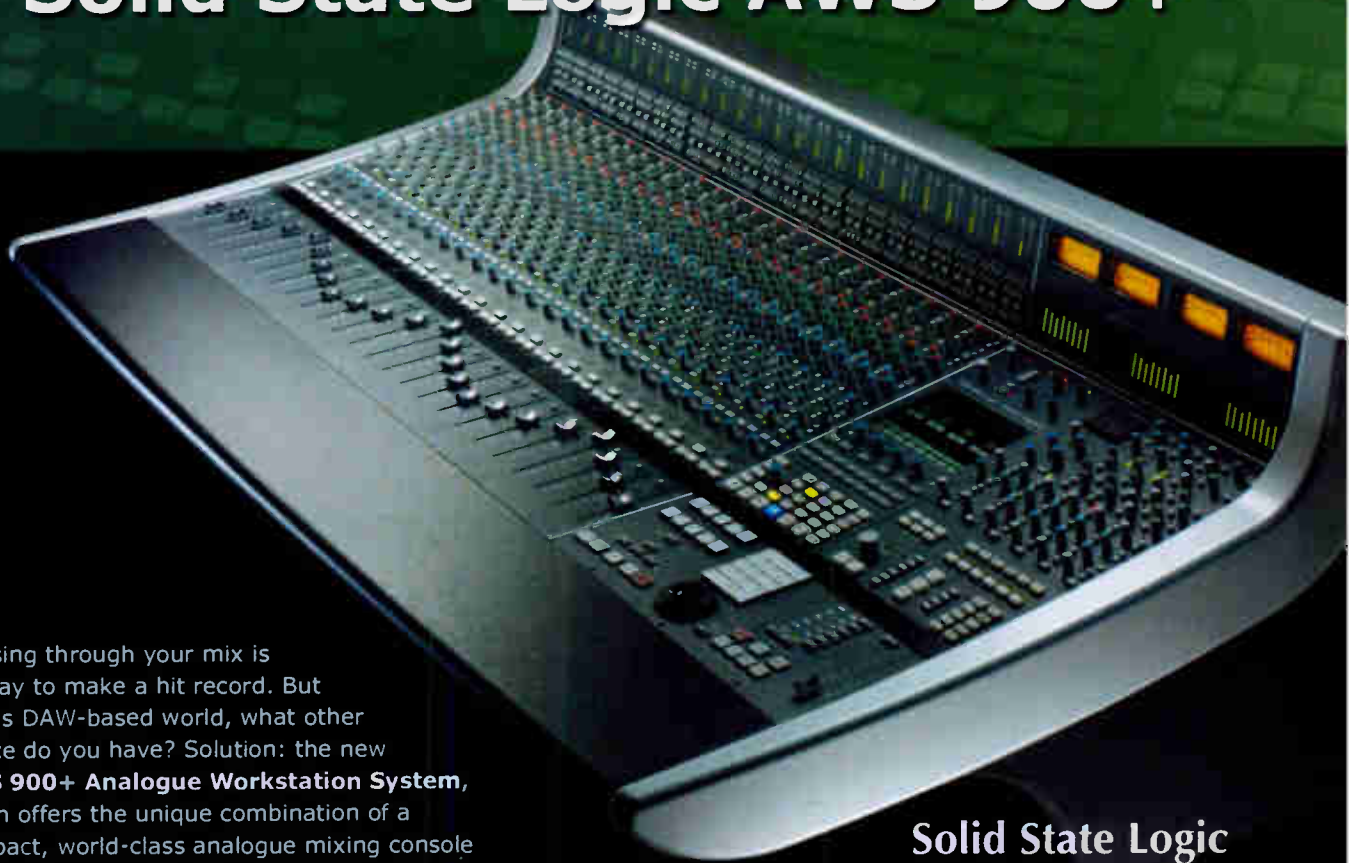
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The Outer Limits Of Portability

By Kevin Becka

Back in February of 2004, *Mix* put the Apple G5 to the test, including the playback of DSP-intensive instruments while recording a live band, support for separate live headphone mixes for the band, playback of a QuickTime movie, quad playback of audio and even running the lights in the venue. The recent release of the new Intel-based MacBook Pro whetted our appetite for another test. So this article was reborn with a new goal: to find the recording limits of Apple's flagship laptop with the newest version of Logic, Apple's native DAW. We made a "logical" choice, as native apps are becoming more and more powerful as a result of beefier chipsets, faster throughput and drivers that impressively reduce latency.

For this stress test, we decided to use our system for a live recording of a five-piece rock band. Because we were using a laptop, the focus of the test was to keep things small. In fact, the footprint was so compact that, apart from our Mackie fader and plug-in controllers, the entire rig could fit comfortably into two small computer bags. To keep the system working hard, we recorded bass, two guitars and a vocal live. We had a drummer triggering samples while our pianist was on a controller playing a modeled keyboard in Logic. We also ran a video while we recorded, and had two instances of Apple's Space Designer reverb going, as well as many plug-ins. Plenty of CPU-clogging stuff going on here!

The 5.1-enabled D Room at the Conservatory of Recording Arts and Sciences in Arizona was our host space. Our room was set up to facilitate having our five musicians and engineer all in the same space, much the same as Peter Gabriel and producer Bill Bottrell have done. With no one separated by walls, everyone became an integral part of the process. At the recording helm was Logic Pro über-man Robert Brock, helped by two able assistants from the Conservatory.

IN THIS CORNER

Apple accommodated us by sending a 17-inch MacBook Pro running a Dual-Core 2.16GHz engine. Our OS was 10.4.7, and Apple's Logic Pro was Version 7.2.1, the first

PUSHING THE POWER OF THE FLAGSHIP INTEL-BASED MACBOOK PRO

version able to run on the Intel-based Macs. Upgrade features include 32-channel support for multichannel Audio Units instruments, integrated support for the new Apogee Ensemble interface (we tried to get it for this review, but it wasn't ready), Digidesign Pro Tools HD7 DAE support, Serato Pitch 'n Time support, improved ReWire support and Euphonix EuCon support, along with improvements for other control surfaces.

The MacBook Pro we tested weighed just under 7 pounds and featured a FireWire 400 port, a FireWire 800 port, three USB 2 ports and 2 MB of L2 cache that could be shared between both cores as needed. The front side bus runs at 667 MHz, and it's the first laptop to offer PCI Express, allowing data to travel in parallel across links and lanes, making for speedy throughput. Suffice it to say, this unit is top of the line.

The MacBook was maxed at 2 GB of RAM, and carried the 7,200 rpm SATA drive option, essential for our application. The 2 GBs of RAM let us run our sample libraries more efficiently. The libraries we used load the leading edge of all their samples in RAM, so the more we can get, the better. The first item on our Apple wish list is that we'd like to have had more RAM available—2 GB is enough, but just barely enough.

A definite snag for this test was that we were ahead of the curve with regard to third-party plug-in support for the Intel Mac, which is low at this time. Even the libraries that offer support are running beta versions. For this reason, we were





limited in our plug-in selection, but got to use some great collections (generously provided by I/O and Prominy) during mixdown on a non-Intel-based system. The nice thing about Logic is that it comes loaded with some great stock plug-in options, including the Space Designer convolution reverb, which is a real DSP hog—perfect for our test.

STORAGE

Because the session involved both triggering and playback of MIDI samples, we needed *a lot* of storage. Glyph provided two PortaGig 7,200 rpm 100GB drives that we configured in a RAID stripe, using the stock RAID software in the Mac OS X. The PortaGigs can be bus-powered, but Peter Glanville of Glyph suggested we run the drives using their AC power supplies, as some computers don't supply enough bus power to sustain the 7,200 rpm drive (even if the computer itself is using AC power). These two drives held the expansion BFD library, which was nearly 200 GB and featured the new Jazz & Funk Expansion Pack, among others.

Other storage duties were ably filled by two LaCie Big Disk Extreme 500GB, 7,200 rpm drives. Each LaCie enclosure holds two drives configured in a RAID stripe and transfers data over a single FireWire 800 or 400 bus. These drives held the whopping Vienna Symphonic Library VSI Cube, featuring more than 800,000 samples

and 550 GB of sample data recorded at 44.1kHz/24-bit. In addition, we had the latest version of Stylus RMX with four new S.A.G.E. Expanders, Synthogy's Ivory Pianos and Prominy's LPC Distortion and Clean Guitar. Adding the internal 100GB, 7,200 rpm drive on our laptop gave us 1.3 TB of drive capacity, and we used nearly every bit.

OUTSIDE THE LAPTOP

I/O was provided by the very portable MOTU UltraLite, a FireWire powerhouse offering two mic/instrument inputs with phantom-powered preamps with front-panel gain and three-way pad. I/O comprised six balanced line-level ¼-inch (TRS) inputs and 10 analog TRS outputs, stereo S/PDIF I/O, assignable stereo headphone output and one MIDI I/O. Just like our drives, we AC-powered the UltraLite to make it easier on the laptop.

One self-induced snag encountered with the UltraLite was when we tried to hook up our drives to the same FireWire port we used for our audio—never a good practice because it tends to clog the pipeline, but we tried it nonetheless. The UltraLite has a secondary FireWire port to connect to other devices, but when we hooked up our storage to that port, it would bring the session to a halt: Logic would stop outputting



Software Instruments

BFD Drums, featuring the Jazz & Funk Expansion Pack (www.fxexpansion.com)

Vienna Symphonic Library Symphonic Cube (www.ilio.com)

LPC Electric Distortion and Clean Guitar (www.prominy.com)

Synthogy Ivory (www.ilio.com)

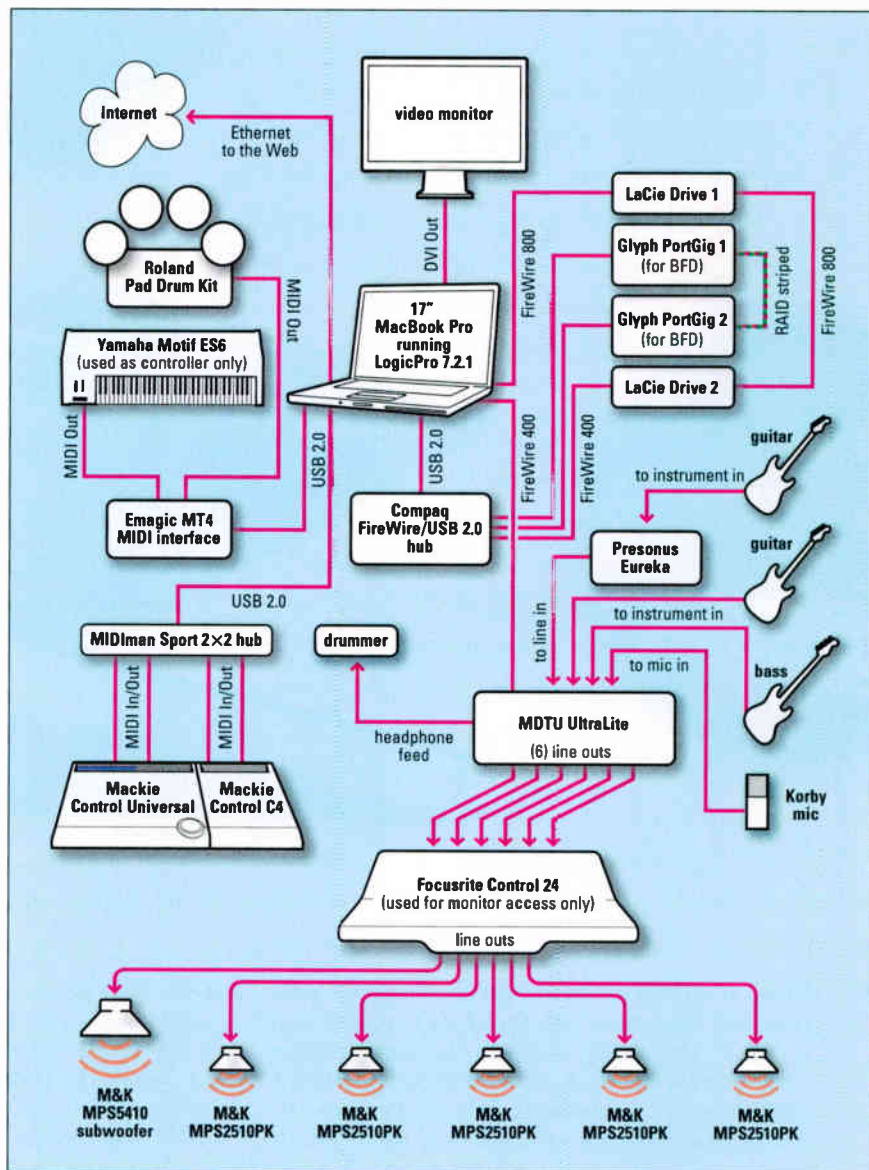
Stylus RMX with four S.A.G.E. Expanders including Noizbox, Stark Raving Beats, Ethno Techno and Skippy's Big Bad Beats (www.ilio.com)

audio. Once the drive was removed from the port, the problem ceased.

Although for the sake of convenience we used the monitor section in the room's Focusrite Control 24 to get to our M&K surround monitor system, the UltraLite could have handled the task nicely. It lets you configure the volume control on the front of the box to control two, six or eight channels of audio (stereo, 5.1 or 7.1). This would allow you to have a handy master volume control for the whole mix, no matter where you were set up and what your configuration.

Other support gear included a Mackie C4 controller offering 32 rotary V-pot encoders with integrated pushbuttons; four 55x2-character backlit LCDs; and a Mackie Control Universal with 100mm motorized touch-faders, multifunction V-pots, automation controls, meter and timecode display. We had to break a lot of things out on hubs; for this, we went old-school with the Emagic MT4 bus-powered 2-in, 4-out MIDI interface, providing 32 input and 64 output MIDI channels, and a MIDIman Sport 2x2 hub. Bringing up the rear was the Compaq USB 2/FireWire 400 hub.

The only mic in the room was Korby Audio's Convertible microphone. This incredible transducer comes with four hot-swappable capsules modeled after a Neumann U47 and U67, 251 and AKG C 12. The vocalist/guitarist sang into the mic fitted with the 47 capsule, which ran directly into the MOTU's mic input. In total, we recorded live bass and two guitars and vocals—just four tracks—while our drummer and keyboard player triggered BFD samples and a modeled Rhodes via a Roland pad kit and Yamaha Motif ES6, respectively.



This diagram illustrates the configuration of the equipment used for this article's tests.

One of the guitars and the bass were taken directly into the UltraLite with Logic-resident plug-ins used for effects and processing. Due to the fact that the UltraLite has only two mic/instrument inputs, the other guitar was run through a PreSonus Eureka and then into the line input of the UltraLite. One slick thing we were able to do was use Logic's channel strip presets to get a quick setup for the instruments. Guitarist Leon Santiago's instrument was quickly dressed up with a Michael Landau preset that put a nice, slightly crunched stereo chorus across his guitar.

The drummer triggered the BFD samples while the keyboard player ran a resident Logic modeled Rhodes piano, which was replaced later during mixdown with one of the Ivory Pianos. For the groove, we ran a GarageBand loop. For reverb, we had two

instances of Apple's Space Designer convolution reverb. Logic lets you jump between presets in real time; however, when we switched the channel strip preset to a clean

The Computer and DAW

- 17-inch MacBook Pro using the Intel Core Duo processor running at 2.16GHz clock speed with a 7,200 rpm internal 100GB drive
- Logic 7.2.1 upgrade: Intel-capable, 32-channel support for multichannel Audio Units instruments, plus support for Digidesign Pro Tools HD7 DAE, Serato Pitch 'n Time and more

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sound, it reset the input source, making us go through channel input setup each time we switched the preset. Having to do this chore negated the feature's potential cool factor. It would be nice to be able to separate the input setting from the preset.

TESTING, 1, 2, 3

The first run at a take was at 44.1kHz/24-bit with the buffer size set to 256 samples. While the players didn't complain about latency, when we asked them, they said it was discernable and might have been a groove-killer if someone was picky. It didn't spoil the vibe of this particular band, though, with everyone locking pretty well into the track. The drummer's proximity to the monitors, however, kept him from feeling the mojo and locking to the track, but that was quickly remedied with a headphone feed sent to him from the front panel of the UltraLite. This output can be separately addressed using the software interface provided with the box.

This take went off without a hitch with the Logic system performance display showing one of the CPU meters (there's a meter for each core) at about 50 percent, while the

Apple system performance meter showed that the whole system was running at about 50-percent load. While tracking, the twin meters showed that the computer seemed to run everything on a single core (meter); however, on playback, both meters were dancing and showing about 25-percent load each.

UH, OH!

A potentially fatal problem arose after a quick break. When we came back into the room, the MacBook Pro had crashed. A reboot resulted in the computer repeating the reboot sample over and over. After another attempt at rebooting by holding down the power button, the computer came up but the screen on the laptop would not. The pixels could vaguely be seen on the screen, but the backlight would not turn on. We eventually set the external monitor to display the main screen on a wall-mounted screen by shining a flashlight through the back of the monitor through the Apple logo and calling up the display screen to reset the external monitor to show the main screen. That logo isn't just for show after all; try to do *that* on a PC!

After our brief encounter with the infinite, we decided to kick it up a notch.

Other Hardware

- MOTU UltraLite bus-powered 10-in, 14-out, FireWire audio interface
- Mackie C4 controller
- Mackie Control Universal
- Emagic MT4 bus-powered 2-in, 4-out MIDI interface
- Korby Audio Convertible microphone using the U47 capsule
- Compaq USB/FireWire hub
- MIDIman Sport 2x2 hub

The next test involved lowering the buffer sample size down to 128 to see if we could reduce latency. The latency was immediately cut in half, and the players were much happier. Latency was less of a problem for the players triggering MIDI as they only experience half the delay of those recording direct. This is because, with an audio input, there is latency going in and going out of the system, whereas with MIDI triggering, the latency is only on output when the sample is converted. We hit the red button and the



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was that when you are looking at the Track Mixer view, you can't move channels; you have to do it from the Arrange window, and when the Record button was on, it would eliminate the metering on the bass track.

Another interesting situation occurred when we were setting the level for the vocal mic in the studio. Of course, with surround speakers in the room, this setup presents a potentially dangerous feedback situation, but with precise mic placement, we were able to get enough isolation. The problem came when we put the track into record-

enable. Logic sets different levels for the track when record is enabled and when it is not. This means that if you're not watching it, you can instantly have the input at unity gain, causing some nasty feedback.

There was one annoying feature that kept us on our toes. Except in a few nonobvious exceptions, in Logic Pro you cannot select more than one track at a time, and the only way to arm a MIDI track when stopped is to highlight it. The catch is that when you press Play with a MIDI track selected, the other audio tracks, even though they were

record-enabled, will not go into record. Our workaround was to select an audio track, hit Play to go into record, and then go up to the MIDI track and select the MIDI track. Apple needs to make Logic more intuitive to the way engineers optimize workflow.

The last Logic gripe is a MIDI issue. Because Logic will not allow separate MIDI tracks for each instrument, you can't record to two MIDI tracks at the same time and address the outputs separately. This was a big problem for us because when we went to tweak the drums or keyboard MIDI feeds on the combo track, it would reset the outputs, resulting in drums being triggered from the keyboard and vice versa. In a nutshell, Logic should treat MIDI I/O assignment, track selection and record enabling the same way that audio tracks are handled.

BOTTOM LINE?

There is really no bad news here. Despite the screen problems and the fact that we hit the processor's ceiling, the performance of the MacBook Pro laptop was impressive. It's important not to lose perspective—this setup was formidable, with lots of DSP-intensive sample rendering going on, as well as audio recording using many plug-ins, including convolution reverb. After all, this is a 7-pound laptop!

What's even more exciting is where this all can go as the next-gen chips arrive and more manufacturers jump on the bandwagon. For instance, a week before our test, Intel released its new Core 2 Extreme processors, which are blazing-fast and run much cooler than past efforts; specs reveal that these chips run at 2.93GHz clock speed, 1,066MHz bus speed and offer 4 MB of L2 cache. Could we see these in next year's laptops? (For more info on these chips, check out: <http://techreport.com/reviews/2006q3/core2/>.) In addition, at MacWorld, Apogee released a new high-performance PCI-Express driver for its Symphony 32-channel PCI-Express card that boasts latency in the 2ms range. Although the laptop doesn't carry a traditional PCI-Express slot like a desktop, it does have an ExpressCard/34 slot that would allow using Symphony with an expansion chassis. This is exciting stuff and bodes well for portable and native audio.

All in all, this was a fun test, rendering some great sounds. Be sure to check out the mix in progress at mixonline.com. Thanks to Apple, Robert Brock and the musicians and the Conservatory of Recording Arts for providing the space. ■

Kevin Becka is Mix's technical editor.



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TASCAM

From Scarface To Simlish

By Blair Jackson

The San Francisco Bay Area was the birthplace of the personal computer revolution and also a primary starting point for the computer videogame industry. Today, it is the home of game companies large and small, and there are dozens, perhaps hundreds, of people who make their primary living catering to the audio needs of videogame publishers and producers. This month, we take a look at three diverse Bay Area-based videogame projects to get a snapshot of what's going on.

"SAY HELLO TO MY SCARFACE GAME"

It's a sign of the times in the increasingly high-stakes world of videogames that media giant Vivendi, publisher of this fall's hotly anticipated *Scarface: The World Is Yours* game, would pay to fly journalists from Germany and England to Skywalker Ranch in rural Marin County in Northern California so they could write stories about the game's *sound*, of all things. With the game costing in the millions already, what's a few thousand more for some worldwide promotion? And it is a pretty good story: Vancouver-based game producers Radical Entertainment (*Simpsons: Hit & Run*, *The Incredible Hulk: Ultimate Destruction*) decided to enlist a crew of Skywalker's sound pros—including multi-Oscar-winner Randy Thom—to give the game the Hollywood sheen it needed. The foreign guests were duly impressed by Skywalker's genteel, golden California setting and were perhaps even a little awe-struck by the presence of George Lucas in the main house's dining room that day.

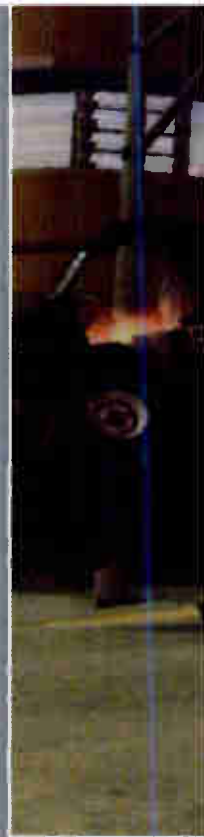
Though Thom will get most of the ink, the sound director and driving force behind the audio for *Scarface* was actually Radical's Rob Bridgett, who worked on the game for three years (compared with two weeks for Thom). It was he who was tasked with putting together the game's soundtrack, working with a combination of sound effects libraries and some original recordings ("It's amazing how good breaking dried pasta sounds for certain gunshots," Bridgett says) in an attempt to convey the story's different ambiances and incredible mayhem. Although drug-dealing lead character Tony Montana (played by Al Pacino in the

BAY AREA TALENT TACKLES A SPECTRUM OF GAME SOUND

film and a sound-alike in the game) met a cruel end in the original, the game gives players the chance to have Montana survive the climactic shoot-out in his mansion and proceed to other violent adventures around Miami and the Caribbean that show what a bad, macho dude he is. The gunshots are unending, the bloodletting prolific, the language profane—this is not one for the kiddies, folks.

Bridgett worked on the game's audio temp track in Vancouver, creating what he calls "placeholders" for sounds he knew would be improved upon once the action shifted to Skywalker. He spent a total of about five weeks in Marin. "We got very rough mixes in place before we set foot on the stage at Skywalker, just to give us a starting point to go from," he says. "Then we replaced a lot of the sounds and created a lot of new mix snapshots. The first week was with Randy doing mainly sound effects consultation. The second week was actually hands-on, in-game sound effects replacement with Randy. Then we spent two weeks on the mix stage with [mixer] Juan Peralta and [effects editor] Mac Smith mixing the Sony PlayStation 2 version and then another week mixing the Xbox Dolby Digital version." Throughout the process, Bridgett worked closely with Radical sound programmer Rob Sparks, who was charged with implementing the sounds into the game on-site for three of the five weeks at Skywalker. Sparks would write the necessary code, and by the following day, the game would reflect the new mix decisions. At the end of each day, changes would be sent back to Vancouver via a secure Virtual Private Network.

Peralta and Smith both had high praise for the Mackie Control Universal unit that became a key element in mixing the game. Peralta notes, "This is the first time we've done a videogame this way, where we





have the Mackie controlling an audio builder program that Radical has created. It gives us volume and pitch control, sends for subs, low-end information and auxiliary sends for reverb control. It's more tactile than just mouse-clicking on a computer, which is traditionally how games have been done. We approached it like we would a film; that's what we do here. Mac got some Foley to cover footsteps and cloth movements and stuff like that, and Rob [Bridgett] brought in all the effects, and we sweetened [them] with some new effects that we thought might be more dramatic.

"Mac and I have been working on films for a while now, so every little cutaway scene in the videogame is treated like part of a film. We attack it that way—background music, ambiences, Foley; getting as much coverage as possible. Rob had a pretty good base mix of what he intended for the scenes, and all we did was add to it to make it more realistic—boost that up, turn that down, clear the dialog a little more or even EQ the dialog in some cases." Peralta and Smith admit to some frustration while mixing for the PlayStation 2 format because of the lack of separation, "but the Xbox was much better. There was more clarity and the stereo surrounds had better imaging," Peralta says.

And what was the experience of the always sage Thom? "Obviously, there are a lot of [game platform] technical limitations we hope will disappear in the next-generation [Xbox 360 and the soon-to-be-released PlayStation 3]," Thom says. "It's frustrating for someone who's used to getting at least 44.1 playing 22Hz samples. It was definitely a challenge trying to shoehorn these high-fidelity sounds into restricted bandwidth. But it was still fun and still very much like what we



Radical Entertainment's Rob Sparks (left) and Rob Bridgett worked on the sound for Scarface: The World Is Yours at both Radical Entertainment and Skywalker Ranch.

do in sound and storytelling for movies."

Thom helped guide Bridgett through Skywalker's massive effects libraries, which, not surprisingly, include thousands of gunshots of every variety, not to mention all sorts of base sounds that could be used to polish ambiences and add hard effects. Verisimilitude is important, Thom says, but in both films and in games, "You're also going to be exaggerating for the sake of drama," he says. "One of the big [sound] elements in Tony Montana's 50-caliber machine gun is a Howitzer, a gun he could never dream of actually carrying around—it's a full-blown cannon." [Laughs]

"We had to do lot of experimenting and trial-and-error to get gunshots and explosions to sound as good as possible," Thom continues. "We would get something and listen to it at 48k or 44.1, and stereo, and it would sound pretty impressive to us. We'd feed it into the game, and [with the reduced bandwidth] it would sound terrible. Sometimes there would be vir-

tually no attack on a sound—an explosion or a gunshot would sound muffled or like it was being faded up. Some of it seems like voodoo in terms of how you get things to work in a game. But we ended up modifying sounds in certain ways to make them sound better coming out of the game.”



**Telltale Games CEO
Don Connors**

SMALL IS BEAUTIFUL AT TELLTALE

The folks at Marin County-based Telltale Games definitely know a thing or two about the high-end videogame industry: Some of them got their starts working for another local giant, LucasArts. And since starting Telltale, they have made some games adhering to the conventional retail model—*CSI: 3 Dimensions of Murder* is theirs, “but it’s unconventional in that the audience is the show’s audience, which is mostly women over 25,” says Telltale CEO Dan Connors. “The audience is less gamer-centric and more fans of the license, so we’re trying to go after an audience that the gaming world hasn’t really figured out how to tap into yet. There’s this larger mass audience that’s slowly moving toward interactivity, but does not want to go in and wear their thumbs out playing games where you kill everyone you see without asking any questions.”

But what has Connors really excited is a different approach to making and marketing videogames altogether: releasing them online first. “When we think about the goal of our company,” he says, “we see ourselves as trying to switch development to kind of a television production model vs. the blockbuster film mentality. Most of the industry has moved to a place where they’re making huge bets on huge licenses with huge budgets: You spend millions on the game and millions promoting it and getting it in the stores. But when you look at the Internet, you see that its accessibility actually gives you a more direct and cost-effective line to the consumer.”

And so, Telltale has begun marketing its own line of clever, playful adventure games on the Internet. *Sam & Max*, a witty game about a Sam Spade-like dog and his “rabbity-thing” partner, had been a relatively successful title for LucasArts several years ago. Now it has returned in the



Telltale Games’ episodic, playful adventure game Sam & Max is found online.

form of an episodic game on the Web for Telltale. The first “season” will comprise six monthly adventures, and, presumably, it can continue on indefinitely.

“There’s no way you could deal with creating a half-hour piece of gaming content every month and then try to get that content on the store shelves,” Connors says. “That’s unsustainable. But online does allow that.”

There will be a number of ways to find the adventures: It will first be available to subscribers of Turner’s GameTap PC gaming site, “then it moves out to other distribution channels—Telltale’s Website, Yahoo games, Macrovision, other downloadable

game sites,” Connors says. “So it’s almost like *Sam & Max* is syndicated, in a sense. Then we do some work and move it onto the consoles as part of their digital distribution system. Finally, at the end of the day, we package it up as *Season One* and we bring it into stores at retail.”

Telltale is fortunate in that it is VC-funded and thus has no large corporate superstructure to finance. So far, the company has been able to keep itself small, manageable and efficient, while also bringing plenty of work to independent vendors.

One of those is Jory Prum, another LucasArts alumnus who has been doing



In a sense, Sims 2 players create their own complex audio mix.



Jory Prum did dialog for Sam & Max at his studio.

dialog recording for the *Sam & Max* Series (and other Telltale games) at his Fairfax (Marin County) facility called studio.jory.org. Prum has worked on many games during the years, doing everything from sound design to technical support, but now feels that he's found his true niche doing dialog primarily. Jobs run from large (*America's Army* had 16,000 lines and required more than four months) to small (a day or two to a week). Big or little, the requirements are the same.

"You're always listening for quality, for performance and to make sure everything's going to match what you recorded of somebody else's character yesterday or three weeks ago," Prum says. "We can typically record between 90 and 120 lines of dialog per hour, which is about as much as anyone else. We have some cool technology for that: There's a company in Los Altos [Calif.] called FreeHand Systems that makes a nifty little device called the MusicPad Pro, which is basically a touchscreen tablet that's designed for displaying scores for musicians. Well, we figured out a way that it could be used for displaying scripts. It has a little highlighter tool in it—you can write notes on it and it has no problem with putting in hundreds and hundreds of pages. It runs on Linux, so it's pretty fast, it connects to both Mac and PC, and at the end of the day, I can grab the script off of the pad and it keeps all the notes, and I can make a PDF of that and give it to the editor."

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Fett Songwriter Magazine

"If you're looking for a mic that performs like it costs a bunch more, give the V69 a very close look. You'll be thrilled at how little money you have to shell out, and you'll be even happier at how well it does its job."

Mitch Gallagher, Editor Eq Magazine

"Soundwise, I was very impressed that the V69 could hold its own against an industry standard like the U47. It struck me as very versatile and of higher quality than other budget tube condensers."

Pete Weiss, Tape Op Magazine



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From Scarface to Simlish

which is just remarkable," he says.

Prum cherishes his ongoing relationship with Telltale: "They're really nice people, and they do great work," he says. "Adventure games have sort of gone by the wayside, especially the funny adventure games. It's a different market: They don't sell zillions of copies and they usually don't make a ton of money. So if you're the [Electronic Arts] of the world, what's your incentive for making an adventure game that sells 200,000 copies and makes its money back, but not a huge chunk of change, vs. making something that's massively popular? Well, to make a game that people love and that's fun to make, that should be enough."

PARLEZ VOUS SIMLISH?

With sales of more than 70 million units worldwide, *The Sims* game franchise is among the most successful in history; in fact, it is *the* most popular PC game of all time. Created by Will Wright as an outgrowth (of sorts) of his smashingly successful and incalculably influential *Sim-*



The *Sims* audio team, from left: Jackie Gratz, Jason Reinier, Jeff Lillard, Thomas Day, Bill Cameron. Seated: Robbie Kauker.

City games, *The Sims* are yet another Bay Area product: Wright's company, Maxis, was spawned in the East Bay town of Walnut Creek in the mid-'80s, and in 1997 was absorbed into the Electronic Arts empire across the bay in Redwood City. The first version of *The Sims*, an open-story game that allowed players to create a family (and their environment) from scratch and control their lives as they interact with each other, caused an immediate sensation when it was introduced in 2000.

Since then, the game has become an industry unto itself, with a second base game (*The Sims 2*), bi-annual specialized "expan-

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sion" packs (*Makin' Magic*, *House Party*, *Superstar*, *Unleashed*, et al), an online community and millions of players all over the world. (The game comes in 18 different languages, or, more accurately, the *game-play* instructions come in that many languages.) The language of the actual *Sims* characters is a made-up tongue called Simlish, an emotion-filled language that defies translation. In creating Simlish, the development team experimented with fractured Ukrainian and Tagalog, the language of the Philippines. Inspired by the code talkers of World War II, Wright also suggested Navajo.

"EA's Number One all-time help desk call was, 'My Sims aren't speaking the right language—I installed English, but they're speaking German or something,'" says Robbie Kauker, audio director of *The Sims*. If you have *The Sims* or the *Sims 2* at home (or, as likely, have teens and tweens who play it obsessively, as in my house), you might be living under the delusion that it's a relatively simple game from an audio perspective—after all, they have none of the flashy sound moments that dominate games from *Grand Theft Auto* to the *Battlefield* Series.

"It's not fair to say it's 'simpler'; it's different," says Kauker, who is in his ninth year with EA and has worked on *The Sims* since the beginning. "We don't have one big sound—we don't have a car, we don't have guns. But we have everyday life—a toilet flush, a sink, footsteps. In [*The Sims 2 Nightlife*] we have karaoke, which I guarantee you is as challenging as doing a good car engine. It's not easy doing karaoke in Simlish—it depends on the creative skill of the player to determine how well they sing. There are nine different songs and a whole range of skill levels."

In a very real sense, it is the player who determines the game's audio mix; it is Kauker and his team's job to make that sound world as rich as they can. "In *The Sims*, you want it to sound natural; you want it to reflect real life to a degree," he says. "There's no orchestra going off when you trip and fall. It's a user-constructed world, so the track limit varies with what the user builds. You can premix some ideal situations and allow for various awkward situations, but on our end, we can only speculate what the user will do. [The number of tracks] at any given time can run anywhere from 24 for basic ambience and voices, up to 60 sounds going at the same time, and all that has to be dynamically done. Of course, that's for the top-of-the-line beautiful PC that we wish every user had," he says with a chuckle.

As you might imagine, recording dialog in Simlish is an interesting experience for both the actors and the engineers. "And the sheer scale of the games has gotten bigger and bigger," Kauker says. "The Sims 1 had 3,000 to 4,000 voice events; now [with *The Sims 2*], we're up 50,000 lines of dialog across a cast of 11. The acting is more improv than scripted. We have the animations and we have the design for how they're used, so although the actors don't have a physical script, they know what we want to communicate and we're relying on the actors to get that across. I've also collaborated with many talented groups over the years—from Cowboy Troy and Depeche Mode to the Pussycat Dolls and Aly & AJ. They've all been phenomenal to work with. Fans will be able to check out the latter two bands in *The Sims 2 Pets* [expansion pack] this fall.

"We record to a custom tool written in [Cycling '74's] Max, MSP and Jitter [interactive data-flow environments], allowing us to do object-oriented programming, more or less, and designed very particularly to our pathways, naming conventions and all the things that go into our pipeline of making the game. Then, on the other side, we have an editor companion that works off the same kind of spreadsheet-driven system. So we can very quickly turn around voice events. We run a very small team here. The *Sims 2* team was three full-time content guys and two production-type people, and a voice director in the studio."

The audio team at *The Sims* division at EA is responsible for creating many of the effects found in *The Sims* games. Foley is done on-site, "and all of us are always out there recording things, using home rigs or portable laptops—whatever's around. The sound of the kitchen in *The Sims 2* is mostly the sound of my kitchen," Kauker says. However, for *The Sims 2 Pets*, which comes out this month, "We used the Victory Foley stage for the pet Foley, and they did most of it wild because we were ahead of [video] production at that point."

Coming from Maxis sometime in 2007 is the *next* generation of game from Wright and company—the much-hyped *SPORE*, which will allow players to experience evolutionary history from single-celled creatures millions of years ago to races of creatures who can conquer planets and galaxies in the far future. Sounds bizarre, but also very cool. We'll be sure to cover the audio angle of what looks to be a fascinating game when the time comes. ■

Blair Jackson is the senior editor at Mix.



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Bay Area Legends

MONSTERS OF RAWK METALLICA

Photo credit: Anton Corbin

While the majority of metal heads in the early '80s looked toward the burgeoning rock scene in L.A., a little-known band was forming its assault on the music industry in the back streets of San Francisco. More than 20 years since their rippin' debut album, *Kill 'Em All*, the boyz of Metallica have upped the ante for their rock brethren, crafting the heaviest of heavy metal, incessantly touring, notoriously attacking a little company called Napster, bringing a new level of sophistication to head-banging—and continually pushing themselves (and their fans) to redefine what is RAWK.

We happen to really like the San Francisco Bay Area here at *Mix*. Not in that smug, hipper-than-L.A. sort of way. And not in that hybrid-driving, organic-promoting, politically correct sort of way that the rest of the country seems to associate with us. The Bay Area is simply our home, and has been for 30 years now. And we like it.

You can't beat New York for its raw, dynamic musical energy. Or Nashville for its cohesive, family-like intimacy. Los Angeles has some of the most inventive minds in entertainment and the massive creative infrastructure to push the world forward. San Francisco, meanwhile, has always existed on the fringe

of professional audio, and that's okay.

To honor the entrepreneurial spirit, we present "Bay Area Legends," a photo feature that spotlights individuals, teams, facilities and venues that have made a difference in our little slice of the production world. This is by no means a "Best Of" list, nor are we trying to rank the major players. So many more artists, engineers, producers, editors, developers, composers and designers are worthy of being included among a collection of local legends that we could fill the whole magazine. And someday, maybe we will.

But for now, we present our own Bay Area Legends.

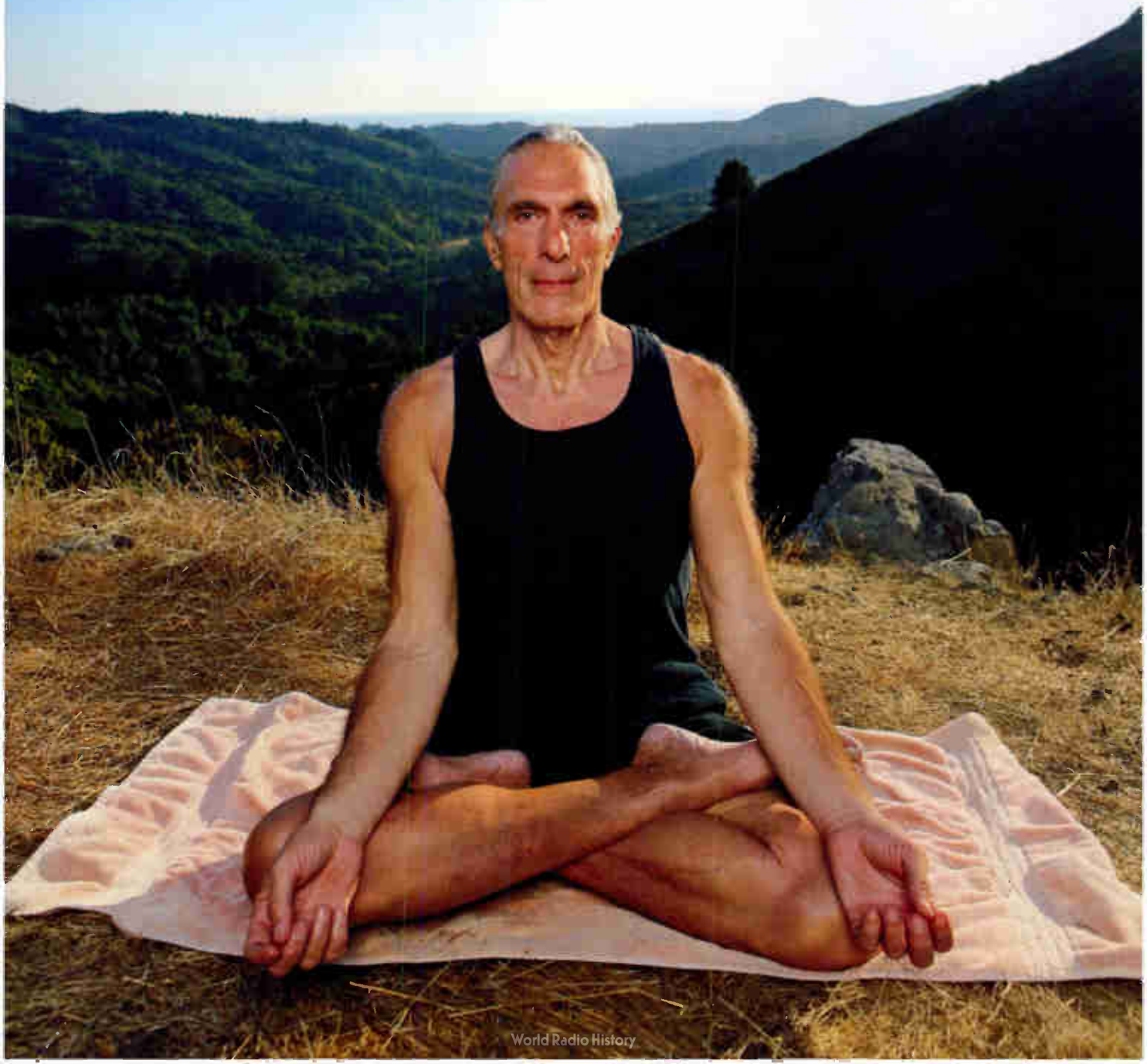


Life in Balance

DAVID RUBINSON

On Mt. Tamalpais, photographed by Steve Jennings

Though he's been long retired from the music industry proper, most Bay Area engineers who came of age in the '70s credit David Rubinson with teaching them how records are made. Herbie Hancock, the Pointer Sisters, Santana, Janis, Moby Grape, Jefferson Airplane, Taj Mahal—his legacy will never end. Did we mention that he founded the Automatt and was the music producer for *Apocalypse Now*?





PRIVATE

Director of Sound

WALTER MURCH

In the Zoetrope Building, photographed by Steve Jennings

Nearly 35 years ago, Walter Murch walked this same stairwell with a Nagra and recorded his footsteps for a scene in *The Godfather: Part II*, where Don Fanucci climbs to his death at the hands of Robert De Niro. At the time, Murch was credited with "sound montage," though in Francis Ford Coppola's world, he was a "director of sound." He directs, he writes, he edits film. He won the rarest Oscar double in history (for Film Editing and Sound) for *The English Patient*. But we still like to refer to him as the original "sound designer."

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John Gatski, Pro Audio Review, December 2005

"A GEM"

Lorenz Rychner, Recording Magazine, April 2006

"A HOME RUN"

Frank Beacham, Radio World, February 15, 2006

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Exquisite Taste

LESLIE ANN JONES

On her back patio, photographed by Steve Jennings

It's not just that she has some of the best ears in the business and the nose of a sommelier. And it's not just that she tirelessly pursues quality both in her own projects at Skywalker Sound and her years on the national board for NARAS and the Oakland Cultural Affairs Commission. We salute Leslie because after cutting her teeth at the Automatt in the '70s, then leaving for an 11-year run at Capitol in L.A., she came back home.



Hearts of Gold

NEIL AND PEGI YOUNG

Photographed at the Columbia River Gorge,
by Danny Clinch

Neil Young could certainly make our Legends section solely on the basis of his incomparable and uncompromising music career, which spans more than four decades now, and has included a staggering number of great albums, tours and films. But we also love Neil because year after year, he and his indefatigable wife, Pegi, have put on what everyone agrees is the greatest series of benefit shows ever staged, the annual Bridge School concerts, which have featured everyone from McCartney to Bowie to Springsteen to Pearl Jam and dozens more—all to raise money for a school for disabled children.



Man in Motion

A photograph of Fred Catero, an older man with a friendly expression, wearing sunglasses and a black t-shirt. He is riding a black bicycle in a courtyard. The courtyard features a large, ornate fountain with a central figure and water cascading down the sides. In the background, there is a house with a red-tiled roof and a brick chimney. The scene is brightly lit, suggesting a sunny day.

FRED CATERO

Photographed at his home, by Steve Jennings

In the mid-'60s, engineer Fred Catero was living a comfortable life at CBS/Columbia in New York. He had just built his "round" dream house in Long Island and had lived there two months when his colleague at CBS, Roy Halee, called from San Francisco and asked him to come take a look at what they were setting up there. Fred headed West and never looked back, walking right into the heart of the San Francisco sound, 1960s-style. Janis Joplin, Carlos Santana, Herbie

Hancock, Phoebe Snow, Chicago, Blood, Sweat & Tears, the Pointer Sisters—and he mentored a legion of engineers at the Automatt, who have all gone on to remarkable careers. He has no cellphone, no Internet service, but today, Fred is busy cleaning up his massive personal collection of radio programs in Pro Tools, using the Waves Restoration bundle and playing back from an iPod. We salute Fred—there at the birth of modern recording and still learning today.



The Breakfast Club

THE ELECTRONICS BRAIN TRUST

Enjoying a post-meal lounge, photographed by Steve Jennings

Every week, a group of technology and electronic music pioneers gathers at a small Berkeley coffeehouse for chat and discourse about all things electronica and esoterica. Pictured (L-R): Tom Oberheim, Dave Smith, Roger Linn, Jaron Lanier, David Wessel, Keith McMillan, John Chowning and Max Mathews. Not pictured is regular club member Don Buchla.

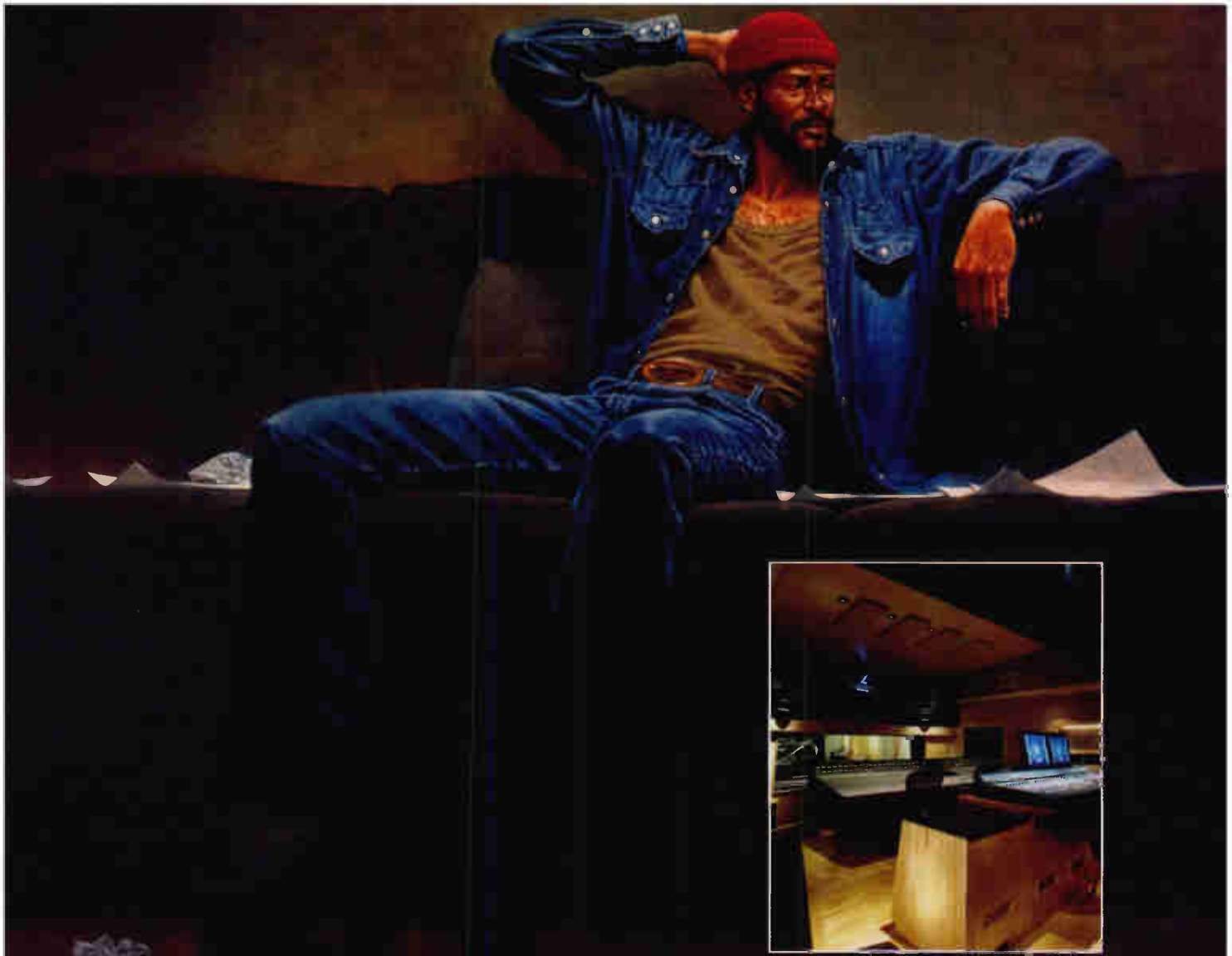
The Scientist

A photograph of a man with a beard and glasses, wearing a light blue shirt and khaki pants, sitting on a stool in the center of an anechoic chamber. The chamber is filled with numerous dark, pyramid-shaped sound absorbers that create a complex, geometric pattern. A bright light source is visible in the upper right, casting a glow on the absorbers.

JOHN MEYER

Alone in his anechoic chamber, photographed by Steve Jennings

From his first design (the Glyph loudspeaker he brought to Monterey Pop in 1967), John Meyer has always taken a different approach to seeing—and hearing—the world. He introduced the concept of trap-zoidal, arrayable enclosures in 1980 and borrowed technology from Stealth aircraft to put in his X-10 monitors. And when Megadeth, the Three Tenors, Carnegie Hall and the Sydney Opera House all use your products, you must be doing something exceptional.



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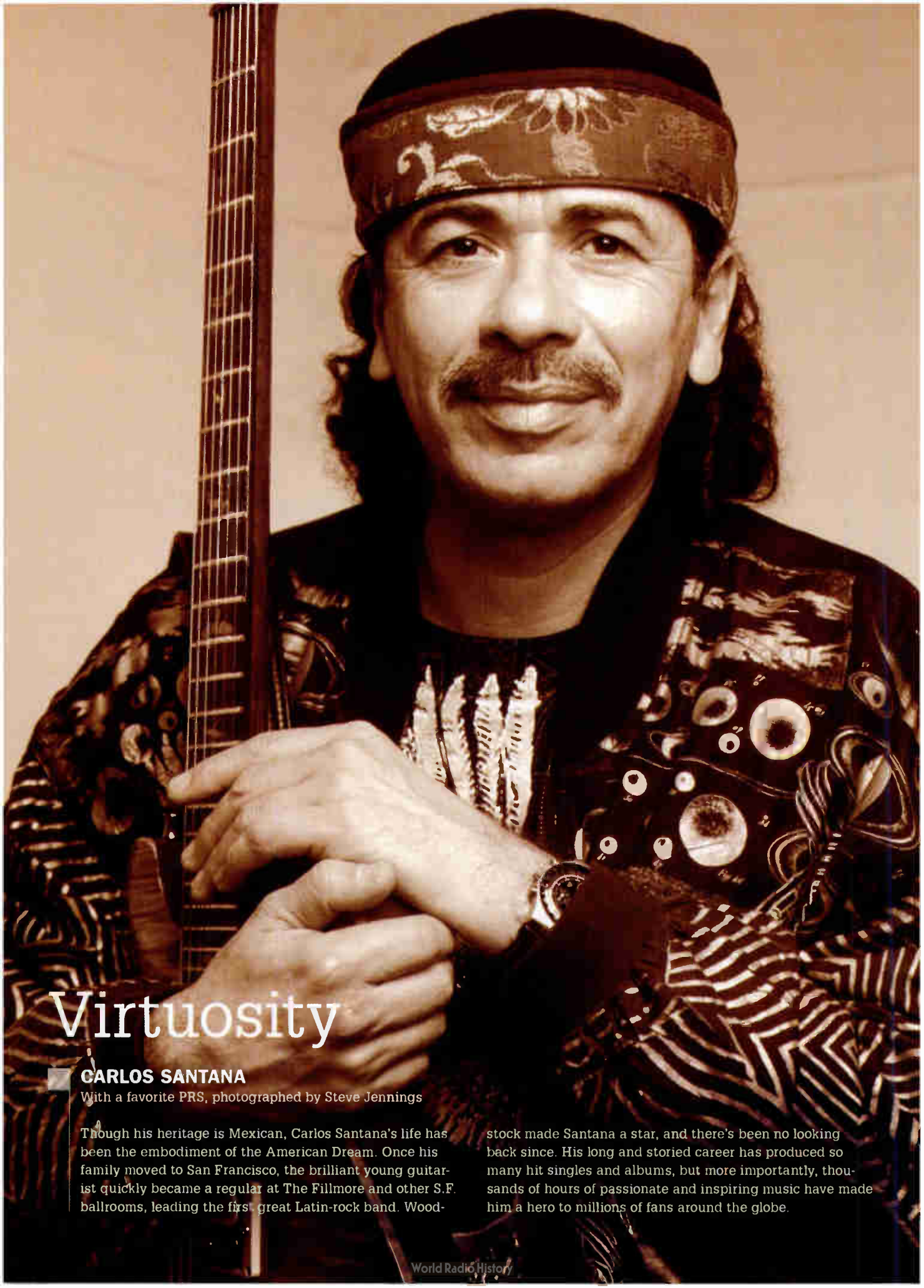
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Virtuosity

CARLOS SANTANA

With a favorite PRS, photographed by Steve Jennings

Though his heritage is Mexican, Carlos Santana's life has been the embodiment of the American Dream. Once his family moved to San Francisco, the brilliant young guitarist quickly became a regular at The Fillmore and other S.F. ballrooms, leading the first great Latin-rock band. Wood-

stock made Santana a star, and there's been no looking back since. His long and storied career has produced so many hit singles and albums, but more importantly, thousands of hours of passionate and inspiring music have made him a hero to millions of fans around the globe.

Magic in the Air

THE FILLMORE

Production Team in Poster Alley, photographed by Steve Jennings

The Fillmore had already been an R&B venue years before Bill Graham took it over during the Day-Glo Rush of the mid-'60s. But Bill turned it into a place where magic happened nearly every night. Free apples greeted revelers as they ascended the stairs to the second-floor ballroom, and inside they were treated to nights of incomparable fun with the greatest rock, blues and jazz bands.

After laying fallow for many years, the Fillmore was re-opened by Bill in the late '80s, and to this day, it remains the coolest venue in S.F., equally beloved by fans and the bands that still beg to play there. From left, Morgan Pitman, production manager; Nathan Harlow, audio head; Zombie, concert master; Jim Cornett, general manager.

Home of the Hits



HYDE STREET STUDIOS

Staff Past and Present, photographed in Studio A
by Steve Jennings

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Hyde Street Studios took over in 1980 and owner Michael Ward (back center, in blue) has made an up-and-down run for 26 years, and is still going strong. We salute you, Hyde Street. For a list of those pictured, visit www.mixonline.com.

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Steve Miller

Still Flying on His Own Terms

BY CRAIG DALTON

The history of Steve Miller and the Steve Miller Band is not just his story, but also the story of rock 'n' roll and the technology that has driven both recording and live concert performances. During the past five decades, Miller has not only seen it all, but he's played a part in much of it. It starts with a 50-yard-line seat at the birth of both rock 'n' roll and home recording, and guitar lessons from the likes of Les Paul and T-Bone Walker. Then the story moves into rough-and-tumble Chicago blues clubs, through the explosive psychedelic music revolution of late-'60s San Francisco and on into the '70s and '80s, when Miller became king of the AOR radio format. Miller continues to this day with the occasional new album and regular sold-out concert tours, and his many hits are now played on "classic rock" stations. His pace has slowed somewhat, but the fire still burns in him: Music is still his life and he is every bit the dedicated craftsman and raucous guitar slinger he's always been. Just out is a remastered 30th-anniversary edition of his landmark *Fly Like an Eagle* album, which also includes a DVD of the current Steve Miller Band in concert. And now, at the TEC Awards ceremony to be held during AES this month, Miller will come

FIVE DECADES WITH THIS YEAR'S LES PAUL AWARD WINNER

full-circle, receiving the Mix Foundation's Les Paul Award in the city where he first made his name, San Francisco.

"I'm deeply honored," Miller says, as he pours another cup of coffee during our conversation in his fabulous recording studio. Like his adjoining home, the studio sits in the middle of a beautiful Idaho mountain landscape, complete with trout stream. In this wonderful retreat from the road, Miller and his wife, Kim, care for a passel of rescued dogs and maintain a serene and sane lifestyle. He is the first to admit that being able to stay viable in the music industry all these years has meant knowing when to take some time off, and this is the place to do it.

As you might expect, there are scads of guitar amps and axes in the studio, which is centered around a Digidesign Pro Tools HD system. Previously, the room had an SSL console, followed by a Euphonix. Miller picks up a gold Fender guitar and slices out some cool jazzy blues chords through some amps he is testing. "We are always on a tone quest," he says. Indeed, it's that questing spirit that has kept Miller vital and looking forward. The glories of his past allow him the grace of a sedentary life he refuses to accept: There's too much to do, too much music to play. He's been this way since he got his first guitar, at age 4.

FIRST GUITAR

"My dad used to tape touring acts that would play at this popular local club in Milwaukee," Miller says, digging into his mental attic. A music buff, Dr. Miller (he was a pathologist) had a Magnacorder deck, which in 1949 was a rare commodity, and he would invite touring musicians over to the house to hang out and run some tape. He struck up a friendship with Les Paul and Mary Ford early on in their career, and Les even gave young Miller some rudimentary guitar lessons when he was still a tot. Later, when Dr. Miller moved the family to Dallas from Milwaukee, musical greats such as Walker and others would come by the Miller house, and they offered guitar tips to young Miller, who also learned a bit about recording from watching

Miller with *Fly Like an Eagle* bassist Lonnie Turner and drummer Gary Mallaber





his father's "home studio" in action. "I've got recordings from 1951 and 1952 of T-Bone Walker playing at our house," Miller says. "I was this little 9-year-old kid, sitting there at this great blues musician's feet. Charles Mingus and Tal Farlow and all these guys were hanging out at the house all the time."

Not surprisingly, this indoctrination inspired Miller to get out in the world and play. "I had already seen Les do multitrack recordings, my dad was making Plexiglas pick guards for Les, and I already understood about record promotion from watching Ricky Nelson's sets on *Ozzie and Harriet* [the Nelson family's hit TV show in the late '50s and early '60s]—they'd have that weird little party they would do at the end of the show with Ricky's band: 'Here is Ricky's new single!' I got a Les Paul Junior guitar and started a band. My first band started out just like Ricky Nelson did: We got \$75 to play 20-minute sets between the dance records at local parties; we did about 500 gigs." Among the players in one of that group's incarnations was Miller's buddy Boz Scaggs, who would also play in Miller's band while Miller was attending the University of Wisconsin in Madison, and would later join the Steve Miller Band in San Francisco before embarking on his own incredibly successful solo career.

During his senior year at Wisconsin, Miller traveled to Copenhagen to study literature and creative writing. "I thought I was going to get a master's, then a doctorate, and then become a teacher because there was always this pressure to get a 'real job,'" he recalls. During a visit from his parents, he received *the* talk. "Steve, what are you going to do?" "Well, I said, 'I'd really like to go to Chicago and play blues.'" Miller had been there once and seen Paul Butterfield, and it left an unshakable impression on him. Butterfield even had a record contract. "I thought that maybe there was a chance for

me," Miller says. "After that one year in Denmark where I wasn't playing at all and was really depressed about it, I just *had* to play music. Well, my dad looked at me with a look like he was going to hit me with a two-by-four, but my mother said, 'That's a great idea. You're young, you're not married. Why don't you go to Chicago and see if you can make it?' It was like a getting a green card—I went right to Chicago.

"In Chicago," he continues, "I joined up with local musician Barry Goldberg, and we competed directly for gigs with Howlin' Wolf, Muddy Waters and Paul Butterfield. There were like five clubs—Silvio's, the Peppermint Lounge, Big John's and a couple of others. It was like graduate school for music—great for your chops, working every day and these guys were adults playing real serious music. But it did not take me long to realize that playing in clubs wasn't really the life I wanted. We would play from 9 at night until 4 in the morning, six nights for \$125 a week."

Eventually heading back to Dallas, Miller decided he wanted a more formal music education, but after that plan was derailed by various administrative hassles, "I put a bed in the Volkswagon bus I'd had since high school, loaded in my amplifier, my tape recorder, my tapes, my guitar and I just sort of went out to the highway, and it was either east to New York or west to California," Miller recalls. He ended up heading to San Francisco, arriving on a Sunday evening and making a beeline straight to The Fillmore. "I had five bucks in my pocket, and Butterfield was billed with Jefferson Airplane, who had just that night brought Grace Slick into their band. It was a place with 1,500 people in there and it was all about music. It wasn't a place where drunks and mafia guys were beating each other up, which was what the nightclub business in Chicago was about.

"That night at The Fillmore, my eyes were like sau-



Miller was one of the first users of in-ear monitors; here, he points to an early system developed by Steven Ambrose.

cers. I immediately weaseled my way into playing with Paul [Butterfield] that night—he let me come up and announced that I was Steve Miller, who was coming to San Francisco! I got a big round of applause.”

For the next several months, Miller lived in his van in the Berkeley hills, playing with a band he put together locally. Random gigs kept the heat on and fed the group while he figured out what to do next. “It was really different, because for a lot of the bands, it was more of a social phenomenon,” he says. “Some of the bands were just awful. I loved Country Joe & The Fish, and I loved going to see the Grateful Dead and listening to Jerry Garcia rap for 20 minutes. So I had to learn a whole new thing. I had just been into playing music. I wasn’t into being a celebrity or rock star or dressing like Mick Jagger.”

He called an old bandmate, Tim Davis, found Lonnie Turner and other guys from Madison, and they all moved into a little house in the Berkeley flats for \$125 a month. Miller bought and cooked the food and kept the household together, eventually selling the tape recorder so they could have money for gas and heat. The owner of the Matrix club hired them; then the band started getting recognized by The Fillmore bookers as an act that could also back up touring blues musicians. “I could back up Chuck Berry—these other bands couldn’t do it; they didn’t know how,”

he comments. Eventually, the Steve Miller Blues Band—they later dropped “Blues” from the name—became a top headliner at The Fillmore themselves.

“It was 1966, and there was just this revolution that was going on—in art and in posters, in theater, in newspapers, in production of sound and lights. It was just a kid’s dream, and I was able to make a living. Then I got my recording contract. There were 14 record companies trying to sign me all at once, and I was able to play them all against each other. I had already been through having my songwriting stolen from me and having a bad manager in Chicago. I knew I had to have 100-percent artistic control. I knew I had to have a strong enough contract to be able to make five records, not one. I knew I had to own my own publishing. I had all these

demands. Because there was this feeding frenzy going on, I had guys telling me, ‘I’ll give you anything you want.’ Negotiations carried on for nine months, but Miller eventually got everything he asked for, setting a new standard in the record business for others to follow.

In 1968, the very unionized Capitol Studios in Los Angeles was not exactly a friendly place for this new breed of flower child, folkly-blues rockers from San Francisco. “The first night, the engineers walked out,” Miller relates. “They even had a union guy that would come and just sit there and make sure we didn’t touch the engineering works.” After a couple of nights of false starts in this stifling environment, Miller called up his executive producer at Capitol, John Paladino, and vented his frustration. The solution? Miller and company were sent to EMI London to work with engineer Glyn Johns to record their first album. “Led Zeppelin came in at the end [of our sessions],” Miller recalls. “Jimmy Page sat at the console and listened to us mix all the electronic music and such on *Children of the Future*; that’s the kind of world it was for us.” And it was just the beginning. The Steve Miller Band’s second album, *Sailor*, yielded the hit “Living in the U.S.A.,” and by the time *Brave New World* came out in 1969, he was well-established as an FM radio favorite.

“SPACE COWBOY” TO “JOKER”

By 1972, Steve Miller had sold a lot of records. But, he muses, “We were still this underground progressive rock band. I had my own concepts and my own ideas. I had been around recording all my life, paying attention to getting good sound. When we went to London to Olympic Studios, Dick Swettenham was there—this great engineer, console builder and visionary. I got him to build me a custom console—a small one that had little boxes for the musicians so each musician had an earphone set that had sliders for all eight tracks, plus stereo panning, which was just unheard of. I had had all these problems with engineers understanding what I wanted to hear, compared to what they were listening to through some big speakers. I’d go, ‘Hey, put a set of earphones on and listen to this!’ I wanted hands-on. I wanted to perfect the equipment.

“Even before I left Texas and went to San Francisco, I had a job at Jack Maxon’s Fort Worth studio—he’s the guy that started Showco. I was the janitor. When there was downtime between the jingle sessions going on, I’d get in there and do multitracking like I’d seen Les and Mary do. I did harmony parts myself, bass parts and so on. That is how I learned how to write and make music. As soon as I could afford it, just about after the third album, I got a 3M tape recorder with the metal cases so I could take it wherever I wanted.

“In about 1972,” he continues, picking up his earlier thread, “we were just about done as this underground act, and we recorded *The Joker*. I had no idea that the title song would be a big hit single; it was just a song I had recorded. We were into this [grind of] 200 cities a year, record, 200 more cities kind of thing.” During this time, the album’s title track became a huge hit, heavy on both AM and FM rotations. “The Joker” took the Steve Miller Band into the big time.

After that, Miller took some time off to focus on writing and recording. He worked on some basic tracks with Mike Fusaro at CBS Studios in San Francisco, then took the tapes home to work with on his custom 8-track console and 3M deck setup. Next he returned to Capitol Studios, but after more frustrating interactions there, Miller called engineer Jim Gaines, who was working up at Kaye Smith Studios in Seattle. Miller arrived in Seattle with a truck packed with tapes and ended up working for 17 very full days.

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With so much creative flow going, *Fly Like an Eagle* offered an intoxicating blend of inventive guitar and synthesizer textures, Miller's patented vocal harmonies and hooks galore. It was, most agree, a rock 'n' roll masterpiece. "Rock 'N Me" became a Number One hit. The title song and "Take the Money and Run" both charted high, and the album as a whole made it to Number 3 on its way to selling many millions. The follow-up album, *Book of Dreams*, was also largely taken from the very prolific sessions for *Fly Like an*

Eagle. More hits followed, including "Jet Airliner," "Jungle Love" and "Swingtown" (see "Classic Tracks" in the August 2006 *Mix*), cementing Miller's reputation as one of the premier artists of the era. "Abra-Ca-Dabra," which came out in 1982, was also a huge single for Miller, both in the U.S. and internationally.

AMAZING ARCHIVES

Fortunately, Miller has saved much of his taped legacy, and now it has been digitized and safely stored in his personal tape

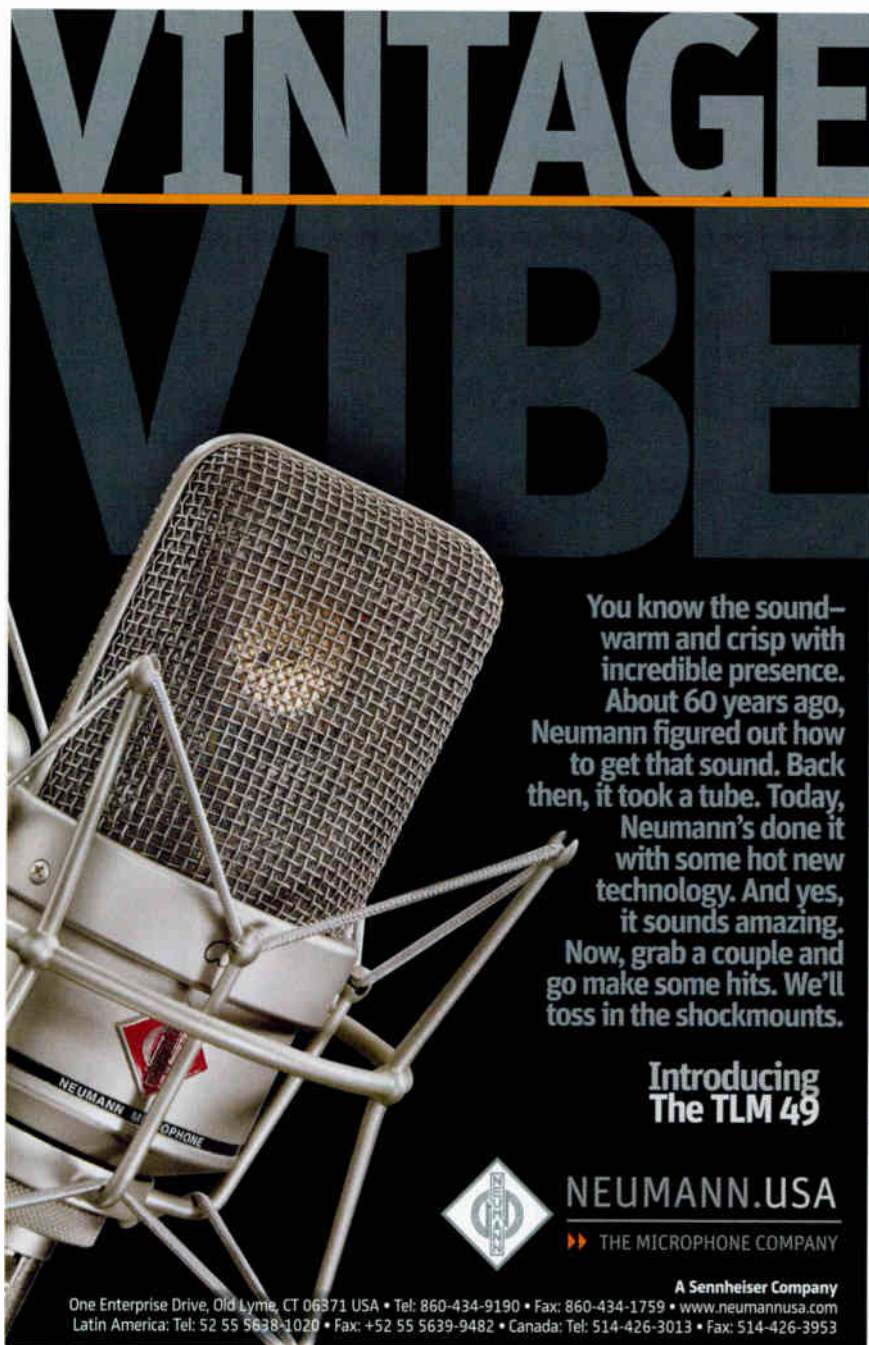
vault. "Steve is so meticulous," says long-time friend and former Steve Miller Band guitarist David Denny, who, along with Bay Area producer/engineer Tom Size, has been part of a several-year process of tape preservation, analog-to-digital transfer and cataloging Miller's vast collection of all kinds of media: recordings off his dad's equipment, all the studio sessions of his career (there are 30 archived takes of the title track to *Fly Like an Eagle* alone!), countless live concerts through the years and performances with many of Miller's contemporaries.

The day I visited, Denny cues up the 16-track Pro Tools HD archive of the title track of the 1969 *Your Saving Grace*. The track sheet has only one track listed for engineer/co-producer Johns' drum mix, and sure enough, when Denny solos the track, it's clear that it is all that was needed. That song wasn't a huge hit as compared to what was to come later for Miller, but it's still stunningly beautiful and effective. As Denny fades in the rest of the tracks, the acoustic guitars, organ and bass support a silky voice and the gauzy "Summer of Love" poem through the bridge. This is one of literally thousands of tracks in a collection from 50 years of recording activity.

Walking through Miller's tape vault and seeing the extensive audio and video archives borders on the surreal. It's much like being able to walk through decades of music as a tourist. Stage banners hang from the skylights, and myriad road cases, guitars, amplifiers and much more have been collected like souvenirs of a life spent largely on the road and in studios. Upstairs, along with the vault, are many of Miller's cherished guitars, including a '60s Gibson Les Paul Deluxe signed by some of his own heroes, including Les and Paul McCartney. After this year's TEC Awards, Miller will have another Les Paul for his trophy case—this one symbolic of his status as a creative innovator in both music and technology. It is a richly deserved honor.

Miller has reached a comfort zone in his life and career that's to be envied. His catalog still sells many thousands of CDs per year. He tours when he wants to, with one of the best bands in the business. If rock 'n' roll's story is Steve Miller's, too, it's nice to see that it's in such good hands and with a bright future ahead. ■

Craig Dalton is a freelance writer based in the Chicago area.



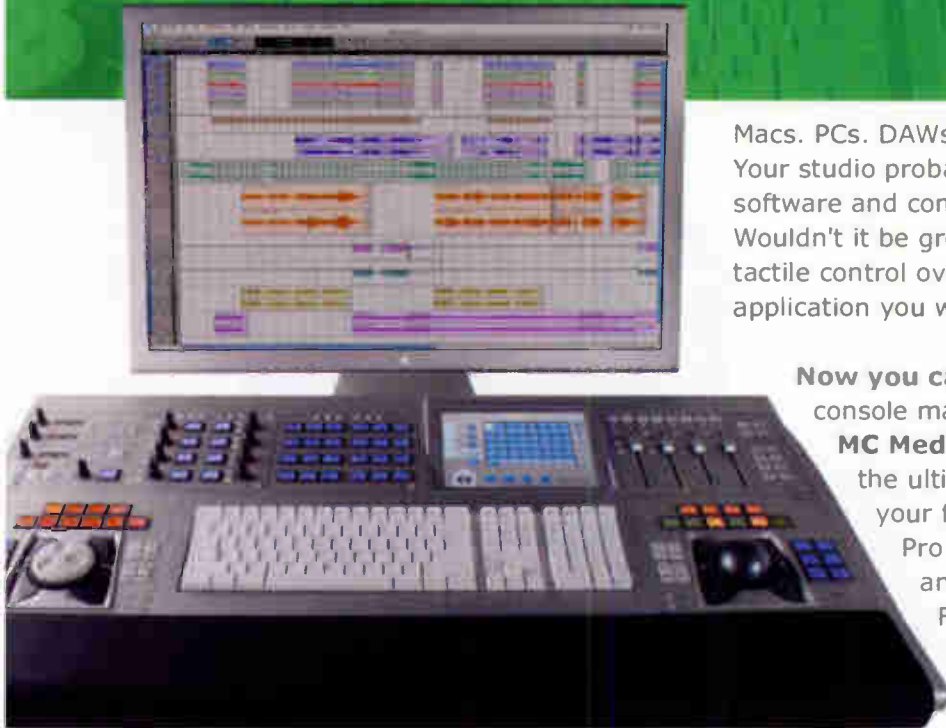
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Jeff Glixman

Embracing Surround for Music, Present and Past

Before producer Jeff Glixman had even set foot on the other side of the glass, it seemed his fate was sealed. During Glixman's performing days—he played in a number of bands, including the Kansas precursor, Cocky Fox—his manager predicted that he would eventually step into the producer's chair. His first production was the 1974 Kansas release *Song for America* (followed by three more releases by that band in the '70s), and in the 30-plus years since, Glixman has worked with such artists as Eric Clapton, Gary Moore, Yngwie Malmsteen, the Allman Brothers, the Georgia Satellites, Black Sabbath and Orange Sky. Most recently, he used his mixing talents on 5.1 surround projects for the Allman Brothers' legendary *Eat a Peach* and *At Fillmore East*, Ludacris' *Chicken N Beer*, Marvin Gaye's *Let's Get It On* and Bob Marley & The Wailers' *Live at Leeds*, the second disc in the deluxe-edition reissue of *Burnin'*.

We caught up with Glixman at StarCity Recording Company, the recording studio he owns and operates in Bethlehem, Pa.

What are you up to these days?

I've recently completed a project with a new group out of Harrisburg, Pennsylvania, called Bridges and a Bottle. [The album is called *Trojan Horse*.] I'm in the process of working with Nathan Lee Jackson, who is signed to our production company. I'm also in the preliminary stages of working with Tyrone Vaughan, who is the son of Jimmie Vaughan of the Fabulous Thunderbirds and nephew of Stevie Ray Vaughan.

Your credit list includes some fairly well-known names. How do you like working with those younger acts?

Well, I've always enjoyed that. Even the big successes I've had, whether it was with Kansas, the Georgia Satellites or Gary Moore, I started in development with them when they were young bands.

What I enjoy the most is the artist development, the formative stages and working on the songs. Also, I like that "We don't have anything to lose because we don't have anything yet" attitude that comes early in careers. One of the pitfalls that can happen is once you've been successful, sometimes it's hard to be quite as adventurous because you don't want to lose the success that you've had. So artists tend to become a little more concerned about that rather than wanting to say everything artistically on a record.

When you were starting out as a musician, did you have an ear toward what was happening in production?

I didn't. We were pretty remote, and there was no glass to be on the other side of. [Laughs] Oddly enough, one of our earlier managers was making up quotes for a



bio, and in my quote he put down that ultimately one day I would like to be a producer. I was always heavily involved in arrangements and the overall sound of the band. I would say to the guys, "Wait a minute, what are you playing here? That doesn't fit. Everyone is playing in the same octave. Let's stretch this out and leave a little space for the vocal."

Has being a studio owner helped you?

Opening a studio had nothing to do with being a record producer. My heritage is that I went from playing in groups to producing. I have never worked in a studio, so to speak, and I've never really opened a studio to have production. I've been involved in a partnership fashion in two studios: this studio, for which we formed this partnership about 10 months ago, and Axis Sound Studios in Atlanta. When I was at the studio in Atlanta, I did very little of my production there. I did most of my work in England and Los Angeles because Axis was a one-room facility and it was booked quite a bit. Also, I was working a lot with English artists. I don't know that opening a studio would give anybody the ability to produce. To me, that is like saying, "I have a soundstage—I guess I'll just direct a movie." [Laughs]

Although we are called record producers, we are really directors. If we make it an aural event, just like a movie is a visual event, the job description is really the director of the movie, not the producer of the movie. I suppose the record company or whoever is funding the project is, in essence, the "producer," but for my productions, I take on that role of director of the movie. I'll start with the script, which in this case is the songs. If we are fortunate, we'll say, "Hey, it's perfect, leave it alone." If it is terrible, we have to throw it out and find new scripts or new songs. Typically, we just have to rearrange the songs. At that point, I've got my aural look for this movie,

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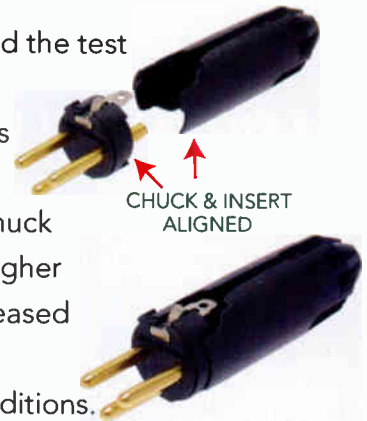


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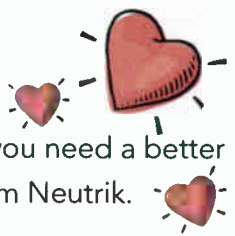
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which may be a bombastic, large thing or it may be just a very close, intimate album. So you're always working toward that goal, and just as a director would work with his cameraman and his editor, I'll work with my engineers to technically handle this task, and I'll work with the musicians and singers, and work on their performance. *You've also mixed a handful of SACD releases. It seems like when you were recording a band like Kansas, and specifically the song "Dust in the Wind," there was some thought about spreading the sound across a spectrum by using mic placement. I know that surround wasn't happening back then, but did you have an ear toward something other than stereo?*

It's really interesting that you say that because when I started, I was very nontechnical. It is true in a way that you're just really feeling the music, but I always visualized it. I didn't know there was such a thing as surround sound and that 5.1 was going to come, but I always thought in that dimension. When I mix, I see things as triangles. If you make a left point, a right point and then put a third point behind your head, I see that triangle for depth. *Are there certain bands that lend them-*



Glixman (far right, foreground) with StarCity engineer Zak Rizvi (left, foreground) with Bridges and a Bottle

selves better to 5.1 mixing?

This may sound a little strange, but all the projects I've done each lend themselves [to 5.1] in different ways. If you have very little information to work with, it becomes difficult. Or if there is sloppiness or things that need to be tucked in, it is very hard to do in a surround sound domain. The best 5.1 project that I've done is the performance DVD for Orange Sky. I knew it was going to be surround going into recording. I was able to really mike up the venue

itself, and that just worked tremendously well. I used this 1,300-seat club for all its ambience, and we did a careful mix within the room. I think all the projects that I've worked on have enjoyed great benefits from being in 5.1, from the Kansas stuff to the Allman Brothers. I think the one that set up the best was the Ludacris *Chicken N Beer* record.

Do you think hip hop is especially good for that treatment or was it just that record? I can see where a lot of hip hop would

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[work] because there is a lot of call and answer and doubling up of individual vocal lines. It just sounds great coming from all over the spectrum. I was actually very surprised that we didn't see a lot of hip hop coming out in 5.1 because I listened to a lot of other things that would set up very well for it. Some of the tracks were very sparse, some of them had 60 to 70 tracks on them, but they all worked very well in the domain.

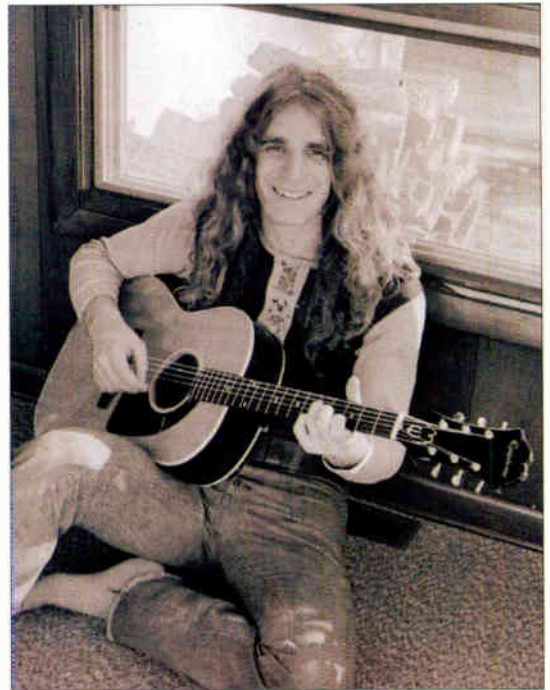
A lot of stuff gets crowded. On Ludacris' record, there would be three or four samples at the same time on the kick drum and a bunch of voices and all kinds of things crammed into stereo. It's all there and you can hear it, but when you break it into 5.1, it becomes really apparent. We went in and did some cleanup on the samples, time-aligned those very closely, and we were able to place them differently in the spectrum.

I hope this question doesn't put you in a delicate place, but does Marvin Gaye work in surround? Does Bob Marley?

Marvin works in surround. That was a tough one, and the reason was that there were no particularly good sounds when we brought up the instruments. Everything was bleeding through and onto everything else. It was [recorded] in one room, so the drums are showing up on the string tracks and the bass guitar was coming from there. It was impossible to derive a [low-frequency] channel because there was a big rumble on everything.

That said, part of what made it so good in surround was that we were able to clean up some of that stuff. When I approached that mix, I wanted to clean it up and spread it out, but it didn't work at all. I really had to go back and remember that when Cal Harris worked on it, it made sense once. I had to find that spot with all the faders up, because so much of that album is using the bleed and the spill that was coming from other instruments on the mics to get the sound that there is no way you'll really create these spaces in 5.1 without it sounding pretty disjointed. You can't move stuff too far away and do too much because [if you were] going to move the piano, you're moving the piano and the drums.

On the other hand, even though the Bob Marley [tracks were] very minimalist, it worked incredibly well. The recordings [for



Glixman in the "Dust in the Wind" producing days

Burnin' and *Live at Leeds*] were beautiful, and it was just one of those things where there was no problem with it at all. The Allman Brothers' *At Fillmore East* really works well, too. Part of that is because I tried to listen carefully to the audience tracks and kind of emulate the size of that room. One thing I did end up doing was putting an actual time delay in the audience mics and shifting the perspective a bit to make the hall sound the right size. I have no idea where the audience mics were and I don't know if they were close to the stage or far away, but when I moved them back in time, it really came to life and started settling in. The phase relationship picked up and the low end got solid. It was very difficult from the standpoint that there were two drummers and the total tracks [recorded] on drums was four. So you had bass drum, drums left and bass drum and drums right.

What makes that record the best, though, was that there were some open stage mics that were open through every other previous version of this project. We went in, cleaned those up and really did a lot of cleanup around Gregg Allman's vocals, where a lot of guitar was coming through. When we got rid of [the bleed in Allman's vocal track], it became really rich-sounding.

So many live albums are augmented later on with studio tracks, tuned up or cleaned up. Did you think of doing any of that on these releases?

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World Radio History

I did think about it. These are old tapes and there was one spot [on *At Fillmore East*] where there was a problem with the tape. There was a spot where there was something like a crease in the analog tape or something. So I did copy and paste a quick moment that happened many times in the song. I corrected that because it felt appropriate to me to restore it to what it was. If Dickey hit a flat note, he hit a flat note and that is how it goes. On the other hand, on "Mountain Jam," which is on *Eat a Peach*, when they recorded it live, they used two analog 16-track [machines] that were running at ever so slightly different speeds. When the edits had been made, there was a slight pitch and tempo shift. I went ahead and corrected that. Oddly enough, to do that correction, I did it on analog machines where I made them match, transferred that to digital and then put it together. I felt that was an appropriate restoration.

What did you use to mix these projects?

Most of these projects were mixed on an SSL XL 9000 K. Although I think it's an excellent-sounding console, I rely pretty

What I enjoy the most is the artist development, the formative stages and working on the songs. I like that "We don't have anything to lose because we don't have anything yet" attitude that comes early in careers.

heavily on external processing. As far as EQ goes, I have some pieces that I prefer—Amek 9098, Neve modules and Tube-Tech's 5-band modules. I like compressors like LA-2As, 1176s, Neve 33609 and the Distressors. Of course, the SSL EQ works well for certain things. I did all the panning within Pro Tools because the analog tapes were too fragile and they couldn't withstand the passes. So I make a high-res pass from analog to Pro Tools as a flat master. Then I take those tracks and come back through the SSL. At that point, I build my mix, but I return it into Pro Tools so that I can print it. I use the panning within Pro Tools because it's easy to automate the panning and make changes.

While working with these newer artists now, are you thinking about surround sound?

Constantly. I like to record rooms with people and instruments in them so I usually have plenty of that information around. Surround sound has really taken off in the broadcast world with HDTV, and XM Radio and SIRIUS will be broadcasting in surround. The projects that I'm working on now look like they will be stereo projects at this point, but I would certainly love to mix them in surround. You never know—something might come up. ■

David John Farinella is a San Francisco-based writer.

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Singer Studio V7

San Francisco Composer/Producer Expands Studio, Diversifies

Twenty-three years ago, Scott Singer was a recent graduate of San Francisco State University—a composer/musician/recordist who was drawn to the place where music and technology meet. He bought a used Otari 8-track machine and put together his own composition studio, Space No. 5.

"Then I upgraded to a Tascam 1-inch, 16-track system," Singer recalls, "and locked it to an old 3/4-inch video and 1/4-inch SMPTE 2-track, and I was able to get a real good gig for the 50th anniversary of the Golden Gate Bridge." Singer was part of a group of pre-MIDI engineer/musicians who developed an avant-garde musical piece for the event: "I worked with [Digidesign founder] Peter Gotcher. Paul de Benedictis [then of Opcode Systems] was one of the members, and we miked the giant cables of the bridge and recorded into an Apple computer and, with Peter's string-emulating software, pitched the cables to create a suite of music where the bridge was the instrument."

But not all of Singer's projects have been that "out there." In 1986, Singer broke into music for television, earning Emmy Awards for the theme music he wrote and performed for local program *Evening Magazine* and the national version, *P.M. Magazine*.

Then Singer began getting film projects for L.A.-based clients, such as producer Roger Corman, and each time he began a new phase of his professional/financial life, he upgraded his studio. Soon he was faced with the choice of leaving the Bay Area for a full-blown film music career in Los Angeles or staying in the place he'd called home since he was a child. Singer chose San Francisco, but that meant finding new ways to make a living.

"So the next career was corporate [work]," Singer says. "I became sort of the Paul Shaffer of Silicon Valley! I had singers coming in and they were recording songs, but they were songs and scores for Kawasaki or Nestlé or Silicon Graphics. Apple Computer took me to Japan, and I performed at the MacWorld Expo there. For five years, I was musical director for these companies, and I started to write more songs and scores for custom videos—all created in my studio. Then it all tanked in 2001, and I was saying, 'What am I going to do now?'"

A lot of people would have downsized at that point, but Singer recently decided to take advantage of this slow period to reinvigorate his studio space. He commissioned a custom Oram GP4T console, flanked by Sound Construction mahogany sidecars that house an ever-expanding collection of outboard gear. "The left side has all the rich processing: the Neves, the GMLs, the UAs, even a '50s Frank Sinatra-style RCA BA6A," he says. "The right sidecar is all the newer stuff, the digital capture media: Pro Tools, Tascam 24- and 48-track HD decks, and CD/DVD recorders."

PHOTO: STEVE JENNINGS



Singer and his custom "Bentley-edition" Oram console in the newly expanded home of Scott Singer Productions

Singer is proud of the console's sound and look. He had met John Oram during his time working in L.A., and when he asked Oram to design the console, Oram went the extra mile. "The board is old-style analog, but with brand-new circuitry," Singer explains. "It's a design where you've got almost 56 inputs back into the board and 24 outputs at the same time with 24 mic pre's and British EQ. And John has friends in England who gave us some Connelly leather [used to upholster Bentleys; note the leather accents above—Eds.], so this became, in a sense, the world's first Bentley-edition mixing board!"

The studio's main monitors are also custom-designed. "It's a 5.1-ready system from Ed Long [EML]," he says. "His whole concept is that each speaker has its own time-aligned subwoofer. It creates a full-range sound from every speaker."

Singer also expanded his facility by adding a 20x30-foot acoustic recording room, an edit room and live-loft to the existing suite, which already comprised a 20x40-foot control room and a vocal booth for music projects and ADR. And Singer is taking some chances these days with his projects. In addition to continuing to do corporate gigs, he's writing and recording original music and then pitching it to filmmakers and TV producers. He's developing and recording new artists, such as local singer Lauren Pease and African/world dance artist Salome, and he's making good on a promise to himself to record his own progressive music. "I've gone full-circle back to songwriting," he says. "The dynamic has changed from constantly looking for people to hire me to creating projects and then trying to sell them. After all these years, I've just got to go where the heart is leading."

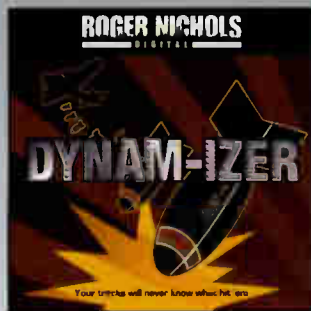
Singer Studio V7 officially goes online October 1, 2006, just in time for Singer to unveil it to friends visiting San Francisco for the AES convention. ■

Barbara Schultz is a Mix assistant editor.

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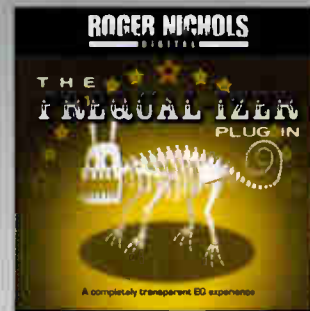
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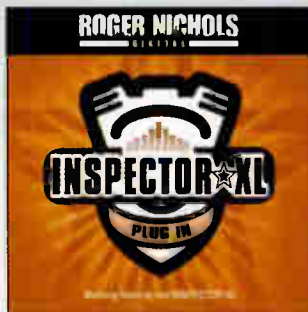
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The New Face of Audio

Charging Into the World of Videogames

Welcome to new monthly column "AudioNext," which is devoted to making sense of the ever-so-burgeoning categories of digitally distributed music and mobile audio in general. I'm very excited about the prospects of documenting the revolution we're all so fortunate to be a part of and—oh, who am I? Good question, let's start there.

I'm Alexander Brandon, audio director at Midway Home Entertainment in San Diego, Calif., and I'll begin by saying it's a great honor to be writing for this magazine. When I mentioned the gig to a colleague of mine, George Sanger (aka "The Fatman," whom we'll interview down the road), his response was "Mix? Damn. Nice!"

Now, set the way-back machine for 10 years ago, when I started doing music for a game you might have heard of called *Unreal*. *Unreal Tournament* followed (1999), and today, Jesper Kyd (who was recently interviewed for *mixonline.com*) is remixing the piece I wrote in MOD format (which I'll describe in a future column) for the upcoming *Unreal Tournament 2007*. I have served on the steering committee of the Interactive Audio Special Interest Group (www.iasig.org) and am now on the board of directors of the Game Audio Network Guild (www.audiogang.org). I also recently finished a stint as an audio columnist for *Game Developer* magazine (www.gdmag.com) and wrote the second "hands-on" book on game audio, *Audio for Games: Planning, Process and Production*. I've worked with a number of greats in gaming, people such as Warren Spector and Tim Sweeney, and in Hollywood with entertainers ranging from Reeves Gabrels to The Rock. I've experienced a great deal of magic, success and hardship during that time, and I picked up a great deal of knowledge that I'd like to share with you.

This column will be devoted to all kinds of new media, from cell phone technology to satellite radio, but perhaps the largest "new media" category for entertainment right now is games. Just to whet your appetite, let's talk money. Sales of videogames in the month of April 2006 alone were \$699 million, according to the NPD Group. While money is a very influential factor in why we do what we do, the other side of the coin is the art. Games are slowly becoming a new form of not only nonlinear



ILLUSTRATION: VICTOR GAD

artistic expression, but also dramatic presentation. I say slowly because, yes, everyone watches TV and everyone listens to the radio, but not everyone plays games. Several people I've talked to in the past few months have had their jaws drop and eyes bug out when they hear I record orchestras and direct Hollywood voice talent, or that friends of mine in the biz have organized a concert at the Hollywood Bowl where their works, alongside the theme from *Super Mario Bros.*, have been performed by the Los Angeles Symphony. To say it for the thousandth time: We've come a long way from bleeps and bloops, but we have a long way to go.

It's a brave new world. Film composers from Michael Giacchino to Danny Elfman have written music for games. A-list film sound designer Alan Howarth ran Electronic Arts' sound department for a bit. More than 10 years ago, Christopher Walken starred and provided voice for a videogame, and more recently, James Caan and Marlon Brando have had their voices used in the game version of *The Godfather*. (See March 2006 *Mix*.) A number of great game achievements have been chronicled in *Mix*, but where are the resources and the community that can be tapped to understand games at the source? Where does one go to learn not just about music, but sound effects, engineering, integration and voice-over? Where does one begin to get the info to get a foot in the door? I can help you there. Let's start with a few basic principles, some of which you may find surprising.

Play games. Be passionate and involved in what you



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AUDIONEXT

produce for. I would never presume to beg for a job writing for M. Night Shyamalan if I told people, "Well, I never really watch movies." If you're an engineer or a Foley artist or a composer, understand that your realm is nonlinear. Things that happen are dictated not by a SMPTE timeline or a frame, but by a set of game mechanics and design criteria.

Read about what's behind the scenes. The game industry, and the game audio industry in particular, is probably one of the most openly helpful industries I know. There is no end of people willing to help you out and give you critiques on your work, and no end of papers, books, articles (albeit articles mostly on older tech) that can get you a leg up on the game industry's inner workings.

Meet and greet. The places where all the folks who are hiring audio pros and the audio pros themselves for games are here: CES, GDC, Game Audio Conference, Project Bar-B-Q and E3. Give them a "Google."

Know your hardware. No matter what you may have learned about recording, processing and mixing, whether for straight-ahead music, live sound or feature film, you have to rethink your approach when you begin to work in game audio. First, you're entering a completely nonlinear audio experience, most of which is dependent on the playback hardware's capabilities and limitations. And of the major players, none are the same. Further, because of limitations in real estate, whether on disk or in RAM, audio may have to make compromises. From the very beginning of a project, you might have to determine if, for instance, a door slam is 8-bit while the music plays back at 44.1/16. That said, the next-generation playback devices boast much-improved audio capabilities. Here's what you're looking at in the coming year.

PC

The PC market for games has always been topsy-turvy. At the moment, there is a near monopoly on PC profits by a company called Blizzard Entertainment, which developed the insanely popular *World of Warcraft*, bringing massively multiplayer online role-playing games (MMORPG) to the masses. In addition, the looming next-gen consoles make it rough on PC titles, but some, such as *Half-Life 2*, surpass every other game on the market in every way.

On the PC, memory and space are no longer limited by hardware. You could probably get away with about 128 MB of RAM for audio on a next-gen PC first-person shooter, and with lossless compression, that's more than enough to reproduce at least two dozen footsteps sounds, a few dozen localized point

source and ambient sounds, any number of player sounds and as many hard drive streams as you would need for music and voice-over. Just make sure you get that real estate early on in the development process.

PLAYSTATION 3

PlayStation 3 (PS3) is getting mixed reactions well before its launch. At \$599 for a fully decked-out PS3, you could buy both an Xbox 360 and a Nintendo Wii, and following lackluster demos at this year's E3, critics have been skeptical. But they said that



about PlayStation 1 and look what happened there. Don't count the current world champ of consoles out yet.

Processor: Cell SPE

Voices: 512

Online Checkpoints

Gamaa (www.gamasutra.com): Gamasutra is the sister online site of *Game Developer* magazine and is chock-full of daily news. In addition, a quick search for audio will yield about 20 features and 30 or so game audio galleries that spotlight individual composers or sound designers.

IA-SIG (www.iasig.org): The Interactive Audio Special Interest Group is an arm of the MIDI Manufacturers Association and specializes in games, Web, portable—just about anything interactive. This group is where you can get a great head start, as volunteers from the industry developed 3-D sound propagation standards that are now in many hardware systems such as Xbox and Xbox 360, as well as Downloadable Sounds (DLS).

G.A.N.G. (www.audiogang.org): If you want to get into game audio, join G.A.N.G. (Game Audio Network Guild), which provides forums for discussions with industry veterans, discounts on software and industry events, scholarships, white papers and news—all rolled into a single source.

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World Radio History

Alan Says



We just wrapped up *Pirates of the Caribbean: Dead Man's Chest*, and there are Royer R-122V tube ribbons all over the score. I used three R-122Vs on the decca tree, and also extensively on the woodwinds.

There's something going on in the mids with Royer's tube ribbon mics that's hard to explain; there's a reach and depth and lushness that sounds magical to me.

For some remote island cues that needed a cannibal vibe, Vinnie Colaiuta, Abe Laboriel Jr., and JR Robinson played drum kits simultaneously on the Sony scoring stage. I captured each kit as a mono setup - panned left-center-right - using a single R-122V over each kit. It sounded amazing.

Alan Meyerson

(Scoring Engineer & Mixer - Hans Zimmer, James Newton Howard)

See photographs of Alan's 'Pirates' sessions at royerlabs.com - Session Photos

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AUDIONEXT

Sampling: 44.1/48kHz, 16-bit
Channels: stereo/DD/DTS
Sound Memory: 256 MB shared = roughly 24 MB max, 8:1 average ratio = 192 MB of sound at any one time.

XBOX 360

The 360 is the "Commodore Amiga" of consoles. For those not familiar with the Amiga, it had the best and most easily accessible hardware capabilities, but didn't end up with



the largest roster of games. Out of the gate, the Xbox 360's sales are showing promise, mostly with its ingenious Xbox Live Arcade feature, which allows broadband downloading of smaller titles and earning points so users can compete online with friends.

Processor: 3 cores at 3.2 GHz
Voices: 256
Sampling: 44.1/48kHz, 16-bit
Channels: stereo/DD/DTS
Sound Memory: 512 MB shared = roughly 48 MB max, assuming an 11:1 average ratio with XMA = around 528 MB of sound at any one time.

NINTENDO WII

Nintendo's GameCube was a little ahead of the PS2 and a little behind the Xbox, and the Wii looks to sit in the middle for next gen in a different way. All voices are mixed in mono on a Wii, so one has to do interleaving in real time through two mono buffers, so the



use of middleware such as FMOD will be a great help to people seeking (excuse the pun) to do streaming, and it's looking likely that Dolby PLII, once again, will be used instead of Dolby Digital. On the plus side, the

memory has increased to the same amount as Xbox; design-wise, the Wii has included a speaker in the controller, which, like the rest of the controller's design, is something of a breakthrough.

Processor: IBM "Broadway"

Voices: 64

Sampling: 44.1/48kHz, 16-bit

Channels: stereo/DPLII

Sound Memory: 512 MB shared = roughly 48 MB max, compression unknown as of this writing.

RAM PERCENTAGES

This is all commercially available information, but where we really get into the nitty gritty for next-gen games is the magic number: 10 percent.

Ten percent is an average that you can expect for RAM usage; therefore, on a PlayStation 3, your average will be 24 MB; on an Xbox 360, 48 MB. These numbers extrapolate well from the PS2 and Xbox, though the Xbox has a little less of an advantage with double the memory rather than four times as much (PS2 with 2 MB, Xbox with 6 MB).

Keep in mind this is an average. An Xbox 360 puzzle game might have even more space to play with, giving room for a mini-GigaStudio yielding incredible adaptive soundtracks, while a high-end *Half-Life 2* first-person shooter will have to fight for the 48 MB over such things as membrane shaders and per-pixel lighting.

If you're a producer, programmer, audio director, sound designer or composer, then think about what is realistic. Map memory early in the game and consider the needs of design first. That way, the audio production team can intelligently work within its limits and not create 96kHz/24-bit audio right and left.

The good news is that for the first time, audio has a little breathing room. People were saying that about the PS2, but as with PS1, the limits did not accommodate the rapid increase in expectations by the market. People need real sound now, comparable to films in terms of dynamic range, bit rate and mixing/mastering. And now, at last, we can give it to them with no argument from the development team.

There's a great deal more about game development that we'll cover in future columns. Next up in the digital domain will be another huge emerging digital market: ringtones and mobile audio. ■

Alexander Brandon is the audio director for Midway Home Entertainment in San Diego, Calif.

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Bob Ludwig – Mastering Engineer

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Tony Shepperd – Engineer/Mixer/Producer

Recent Projects: *Michelle Williams, Kenny Loggins, Whitney Houston*
"The Big Ben is hands down the best clocking source I have ever used! Since I mix entirely in the box my clocking source is extremely important. I recently upgraded my system to a Digidesign Pro Tools HD 3 Accel system. The cherry on top of that luscious Sundae is the Apogee Big Ben. Instantly my imaging improved and I could actually hear the tails of my reverb trails. It is now the clocking source for my entire studio."

Eddie Kramer – Engineer/Producer/Writer/Musician

Recent Projects: *Remastering - "Voodoo Child: The Jimi Hendrix Collection, Experience Hendrix: The Best of Jimi Hendrix"*
"With the advent of the Big Ben [going from analog to digital] has become a lot easier for me. The sonic clarity of my transfers from the analog world into the digital world were made a lot clearer, a lot cleaner and more transparent. Now I feel much more comfortable with digital."

Steve Krause – Scoring Mixer

Recent Projects: *"Running Scared", "Crash", "In Her Shoes", "Kicking & Screaming"*
"The coolest thing about the Big Ben is what it does to your sound. I have six interfaces in my ProTools rig and have one clock output go to each interface which lines them up and makes them spot on. When I am mixing I am using the converters to go in and out to analog gear, eq's, compressors, etc., so when the conversion is that precise and I am summing to a mix with at least 48 ins and outs, Big Ben makes the mix so much better."



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Making the '50s Sound Like—The '50s

By Heather Johnson

For their critically acclaimed film, *Good Night, and Good Luck*, co-producers George Clooney and Grant Heslov wanted the activity on the CBS Radford Stage (Studio City, Calif.) to authentically represent television's golden age. At one end, Edward R. Murrow delivered his hard-hitting *See It Now* program from a stiff armchair. Nearby, his team sat poised at the news desk. At the opposite end of the cavernous room, a stunning female jazz vocalist—played by three-time Grammy-winner Dianne Reeves—and a small combo rehearsed for an appearance on the variety show *Shower of Stars* later that night. In between and all around, producers and reporters rushed through the set, leaving trails of cigarette ashes and half-filled coffee cups behind them.

On a typical film, Reeves and her ace band would likely play (or pretend to play) to a prerecorded track, giving the sound team the ability to edit, EQ and remix music recorded later to fit the film and CD soundtrack. But Clooney took a different approach, opting to record the music live on the set in one pass. Production sound mixer Edward Tise, known for his work with director Stanley Kubrick, tackled that job with excellent results, navigating around simultaneous dialog recording, dodging film cameras and working with “period” microphones that would both look and sound authentic.

Tise didn't know it at the time, but those undoctored live recordings would comprise almost half of *Good Night, and Good Luck's* CD soundtrack. Leslie Ann Jones, a respected engineer in music, film and television, as well as Skywalker Sound's director of music recording and scoring, faced an equally challenging task: record nine songs to fill out the soundtrack that would match Tise's on-the-set recordings, both sonically and stylistically, and then mix the entire album so that everything sounds like it was recorded within feet of Murrow in the early 1950s.

By recording live on the set, Tise could apply Clooney's primary intention—to make the viewer feel like they're in the moment—to the music. Meanwhile, music supervisor Allen Sviridoff had to find songs that fit the time period, setting and mood; considering Murrow reportedly loved jazz, Sviridoff and Clooney

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opted for a collection of smoky standards. “The songs comment on the action, so the lyrics had to work, as well as the music,” says Sviridoff. “We also wanted to find a balance of ballads and up-tempo songs.”

Clooney chose the classic “How High the Moon” early in the planning process, but he heard it as a slow, haunting ballad—an unusual arrangement for this swinging standard. Matt Catingub rearranged the song to match Clooney's idea and the movie's more somber mood. For the remaining tracks, Sviridoff combed through 2,000 songs to find 200 potential cuts, and then met with Clooney to whittle the list to the soundtrack's final 15. Catingub then worked with Clooney and Sviridoff to rework almost every song, resulting in a slowed-down “Straighten Up and Fly Right,” a mysterious “I've Got My Eyes on You” and a version of “One for My Baby” that trumped Sviridoff and Catingub's original cut for the closing credits, “Who's Minding the Store?”

“He loved the way we did that song,” says Sviridoff, who worked as road and personal manager and producer for Rosemary Clooney (George Clooney's aunt) beginning in 1978. “I had suggested to Rosemary Clooney in 1983, when we recorded her version of the Harold Arlen classic, that she sing it with just a guitar. We told Matt we wanted to make the film version as sparse as Rosemary's layout. We really knocked ourselves out on

that one, but we keep saying proudly that it was Harold Arlen and [co-writer] Johnny Mercer that knocked us out.”

Reeves, who had previously knocked them out with her demo video, soon found herself off of a European tour and in Hollywood at CBS Studio Center Stage where she joined Catingub (tenor and alto sax), Peter Martin (piano), Jeff Hamilton (drums) and Christoph Luty (bass) to perform on camera.

Tise recorded the group with an Aaton Cantar 8-track hard disk recorder and Sonosax 10-channel mixer, often setting aside two tracks for the dialog happening at the same time. “We would go straight from doing a scene with Edward R. Murrow and the boys in the bullpen to Dianne Reeves,” says Tise, who also worked on the Clooney-starred/directed *Confessions of a Dangerous Mind*. “I started focusing on this two days in advance. I knew how the art department wanted to set up the set and I had a rough idea of the band setup, although I originally thought there were three musicians.”

Art, audio and artist agreed that a Neumann U47—Clooney built several key shots around this “working period mic”—made a fine choice for a vocal mic. A lone props supplier insisted that CBS would never use such an expensive mic in its TV studios, so maybe they compromised.

Tise placed a Schoeps PZM mic on the

—CONTINUED ON PAGE 84

A Scanner Darkly

Acoustic Flavors Enrich Paranoiac Score

By Matt Hurwitz

Drug-induced paranoia: If you want to know what it looks like, ask *A Scanner Darkly* director Richard Linklater and his team of rotoscoping animators. If you want to know what it sounds like, listen in on the film's soundtrack by fellow Austinian Graham Reynolds.

The composer began working on Linklater's film, based on Philip K. Dick's book about the effects of drug use on an undercover narc (Keanu Reeves) and those within his world, even before Linklater began shooting. Later, it was converted to an eerie animated feature. "He gave me a script very early on," Reynolds recalls. "Rick had been watching *Last Tango in Paris* at the time and was liking the music," prompting the suggestion of a saxophone-centered score with all acoustic instruments, creating a jazz noir sound.

"The idea that we started with was to keep it all acoustic, under the theory that if you use processed or electronic instruments, it tends to date the music," Reynolds says. "The film takes place seven years in the future, and I didn't want someone seven years from now saying, 'Oh, that sounds exactly like 2006.'"

After receiving a rough cut of the

video footage on which the animation would be based in the fall of 2004, Reynolds began recording with various players from his local Golden Arm Trio, a group whose members rotate, but always includes Reynolds. The arrangements contained sax, upright bass, piano, vibes and drums, which the composer recorded at his bedroom home studio, Red House Studio. "It's one long room, with the desk at one end with the recording stuff, all the equipment in the middle and then the bed at the far end," he says. "It's a big bedroom, but it's a bedroom."

Reynolds recorded into MOTU's Digital Performer using a MOTU 896HD interface and "a whole collection of cheap mics," he says. These included an AKG C1000S to cover vibes and glockenspiel, and CAD KBM-412 and MXL V67 for recording any number of bass drums. "I'm a big fan of bass drums," Reynolds notes, pointing out his collection that ranges from 20-inch- to 40-inch-wide drums with a variety of beaters, all of which can be heard in the film. Reynolds also made use of Earthworks TC30K omnis.

For the first half of the sessions, Reynolds handled the recording himself, but later added a longtime cohort, musician and engineer Buzz Moran.



"Buzz has been my second pair of ears," Reynolds explains. "He not only has good judgment, but he's also a great engineer."

As the animation began rolling in—prompting occasional music changes for previously unseen animated objects now showing up onscreen—it became apparent that the sax-oriented jazz noir score may not have been the most suitable approach. "After each meeting Graham went to, it became more and more apparent that what they wanted was something more electronic and trippy," Moran recalls.

"The characters are on drugs for the whole movie, and the music didn't quite connect with that," notes Reynolds. "Drugs haven't been associated with acoustic instruments in a long, long time."

The solution lay in an inexpensive collection of plug-ins, Cycling '74's Pluggo. "I bought a cheap set of plug-ins and just started processing what we had, making it unrecognizable by transforming it," Reynolds says. "We just started peeling away the saxophone layers. In some cases, we were able to build cues with the other instruments that had already been recorded, and, in other cases, we started from scratch."

Reynolds and Moran ran the gamut



Composer Graham Reynolds (also above), surrounded by Austin's finest

of what Pluggo had to offer, changing and warping the instruments to match the dismal, drug-warped vision of Reeves' Bob Arctor. "I was putting these plug-ins on and taking the acoustic instruments and processing them, and the more I did it, the more Rick liked it," says Reynolds. "But everything on that score began as the recording of an acoustic instrument."

Rounding out the palette was a variety of unusual instruments, some of which required no processing (but were often the recipients of such manipulation nonetheless). Prominent in the score is Reynolds' vibraphone played with a cello bow, producing a sound not unlike that produced by running a wet finger around the rim of a wine glass. "Unlike a synthesized sound, you get this kind of reedy, bowed sound that's not at all the clean, pure tone you'd get from a synthesizer," Moran explains. "And then that helps once you've put all these effects on top of them."

Another eerie sound was created by a bowed wood saw, played by another Austin musician, Jeff Johnson. "He's known around Austin for bringing in an old record player and playing old 45s, playing the melody along with the saw," Reynolds says. The

composer also took advantage of Austin's country music community, which offered up former Dale Watson pedal steel player Ricky Davis for one tune. "We're blessed with all these amazing steel guitarists," Reynolds says, "all these people who used to play with big country guys who retire and then start playing gigs."

Reynolds and Moran added various electric guitars to the tracks, ranging from the composer's wild, Jimi Hendrix-like rides to Moran's surfer rhythms on "Your Move, Peterbilt." The two mixed the soundtrack into between three and six stems, which Reynolds then brought to re-recording mixers Skip Lievsay, Tom Hammond and Jeremy Pierson for the dub at Warner Bros. in Burbank, Calif., last April.

The digital recording process was new for Reynolds and Moran, and it successfully places the audience in the uncomfortable world of the film's drug-addicted characters. "I hadn't done much computer recording, and Graham started learning when he bought the program to do this soundtrack," admits Moran. "The whole process, we were pretty much waiting for somebody to catch us and say, 'You can't make a soundtrack that way!'" ■

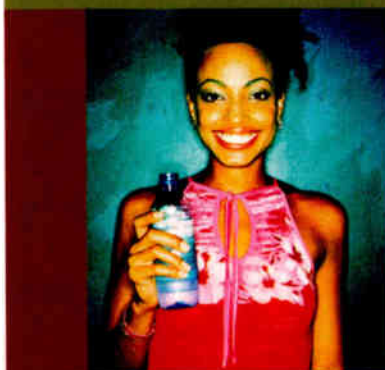
Good Night, Good Luck

—FROM PAGE 82

lid of the piano, and used an RCA DX77 ribbon mic (nabbed off of Murrow's desk) for the bass and a 1960s Schoeps CMT501 stereo mic—hung above the band—for the drums and sax. He also hid a few modern condensers near the bass and sax. Rightly assuming that Clooney would want to hear the music from a distance, Tise set aside one track for a room mic, placing a Schoeps boundary-layer mic "miles away" from the band near the lighting rig. The room mic ended up serving dual purposes. "When I finally had time to listen back, I thought, 'You know, what's missing is the cymbals,'" says Tise. "I brought the fader up in playback on that boundary-layer Schoeps, which was 100 feet away, and there were the cymbals! They were the only things that carried with any clarity up to that microphone."

Monitoring on headphones, Tise recorded straight into the Aaton, with no outboard gear; apparently, it wasn't needed. "The pre's on the Aaton are stunning," says Tise. "Nothing was limited. The music editors wanted to add some simple reverb, but George didn't want it; he wanted to keep the recordings as they were. It took

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enormous courage to do that.”

The ball then fell into Jones' court to record nine songs that matched Tise's recordings in an acoustically sound recording studio with very different equipment. Again, Reeves came to Hollywood during a short break from touring, but this time, she met Jones, engineer Charles Paakkari (who assisted Jones and mixed a portion of the songs) and Sviridoff at Capitol Studios, a fitting choice considering that its 50-year history includes 19 Frank Sinatra albums and recordings by Ella Fitzgerald, Nat King Cole, Harry Connick Jr. and Diana Krall, among

many others. Jones knew the room well, having spent nine years there as an engineer before joining Skywalker Sound in 1997. She set up the band (the same musicians who played in the movie, with the exception of bassist Robert Hurst) together in Studio A's 1,500-square-foot room. Reeves had initially planned to sing in the main room with the band, but because her schedule left her with limited time, they took a safer route and set her up in the studio's large 11x12 iso booth. Through the magic of clever engineering, however, Jones still got Reeves' voice in the live room. “After we were done recording,

I shot Dianne's vocals back into the room and recorded room tracks of her vocal for all of the tunes,” says Jones. “That's what made it sound exactly like it sounded in the [TV] studio,” adds Sviridoff. “That's the genius of Leslie Jones.”

Like Tise, Jones used a mix of old and new equipment. She used most of the same mics, including the classic Neumann U47 for Reeves, but ran them through vintage Neve mic pre's and EQs to help replicate the sound on the set. Aside from that, much of the ambience came from the studio's acoustics and the musicians, who not only played flawlessly, but could also offer input based on their experience at CBS Studios.

From the modern world, Jones recorded through a Neve VR60 console to Pro Tools HD. There were no overdubs; even Reeves, despite concerns about her voice, sang spot-on. For the mix, Jones and crew moved the HD rig to Capitol's Studio C and worked on its Neve VRQ72. Jones first put up Tise's recordings, which were mostly mono and had a lot of leakage, but sounded “amazingly quiet,” considering the circumstances. “For the first couple of hours, I went back and forth between one of his takes and one of mine, and made adjustments so that they sounded pretty much the same,” says Jones. “It was important to establish a sound with Edward's tracks because I had the least amount of choices in terms of placement and EQ. So I needed to make that work first, and then I just tailored my mixes to resemble his.”

The challenge, says Jones, was to use this leakage in a way that would give Clooney and Sviridoff the sound they wanted, without letting it hamper the mix. Clooney, in Italy by this time working on another film, suggested changes and approved mixes over the phone.

Engineer Ron McMaster added the final touches at Capitol Mastering. Fittingly, Concord Music Group, Rosemary Clooney's label, released the soundtrack, only to watch it earn a Grammy (and TEC Award nomination) for Best Jazz Vocal Album. The trophy serves as a wonderful recognition for a project that challenged the norm on both creative and technical levels. “Every last person said, ‘That's impossible! You can't record on a soundstage and get good quality!’” says Sviridoff. “But I knew that if George and Ed Tise believed it, then we would get it. And it didn't take anything extraordinary, just great miking and great care.”

Jones adds, “If you have players that know what they're doing and good-sounding instruments, that's 90 percent of it right there. Capturing what Allen and George Clooney wanted was the other 10 percent.” ■

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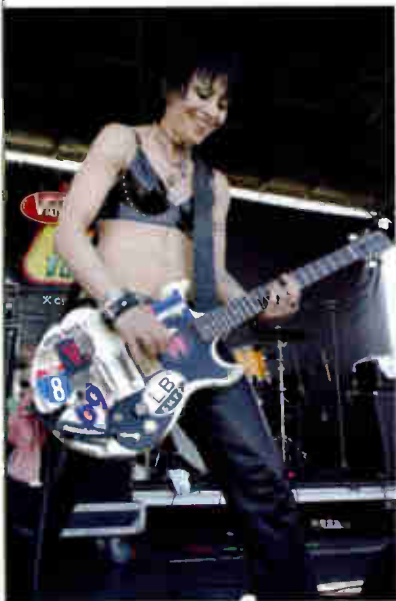



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Joan Jett



Photos and Text by Steve Jennings

With its two main stages and several smaller ones, the Vans Warped Tour 2006 makes for non-stop music. Among the many artists on the tour (Anti-Flag, Living End, NOFX, Thursday, Rise Against, Less Than Jake), *Mix* caught up with Joan Jett & The Blackhearts and her front-of-house engineer, Billy Crater, at San Francisco's Pier 30/32.

"Since the bands just get line checks, it's weird at first, but you get used to hearing with cans and knowing where the level meters are," Crater says. "It's the same for every show. With Joan, she's been doing this [for] so long that she's okay with just getting up there and jamming. Joan's very straight-ahead and consistent. It's always better to mix experienced players, but all the bands are great. Certain methods work with any band—double guitar channels, et cetera. We bring one mic and a stand for Joan, and an in-ear monitor

rig for Joan and drummer Tommy [Price], including transmitters and receivers." The JBL VerTec P.A. system for this tour is provided by Rat Sound; Crater is mixing on a Midas H3000 with effects including a Lexicon PCM 80, Yamaha SPX-990 and a TC Electronic D-Two.

"To mix it up, every band plays at different times throughout the day; we might play one day at 12:30 and the next day at 5:30," Crater says. "It's a little crazy, but Joan loves the tour and the hang with the other groups. The crew works great together and help each other when they can."



FOH engineer Billy Crater

FixIt

For Shakira's current tour, FOH engineer Brad Madix (Def Leppard, Queensryche, Psychedelic Furs, Marilyn Manson, Rush) is using a Digidesign VENUE in tandem with a sidecar on his right. For additional tips, check out next month's "All Access."

I made (the sidecar) bus ID 1, which makes inputs 1 through 16 on my right—weird! It just made sense this way because it puts all of the drums on one bank and all of the percussion on the next, and I put Shakira's vocal fader at my right hand where I can get to it quickly. This puts the output faders in the middle, the selected channel section is just to my left and the guitar channels appear down on the left end. As for inputs, I stopped counting at 72! Seriously, it's something just north of that, if you add in all of the talkback from the MD and monitor guy and so on. And I'm not including effects returns or CD playback lines in that count, mind you. I know we were fishing for snake lines the other day, and there are 80 in the split!



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News



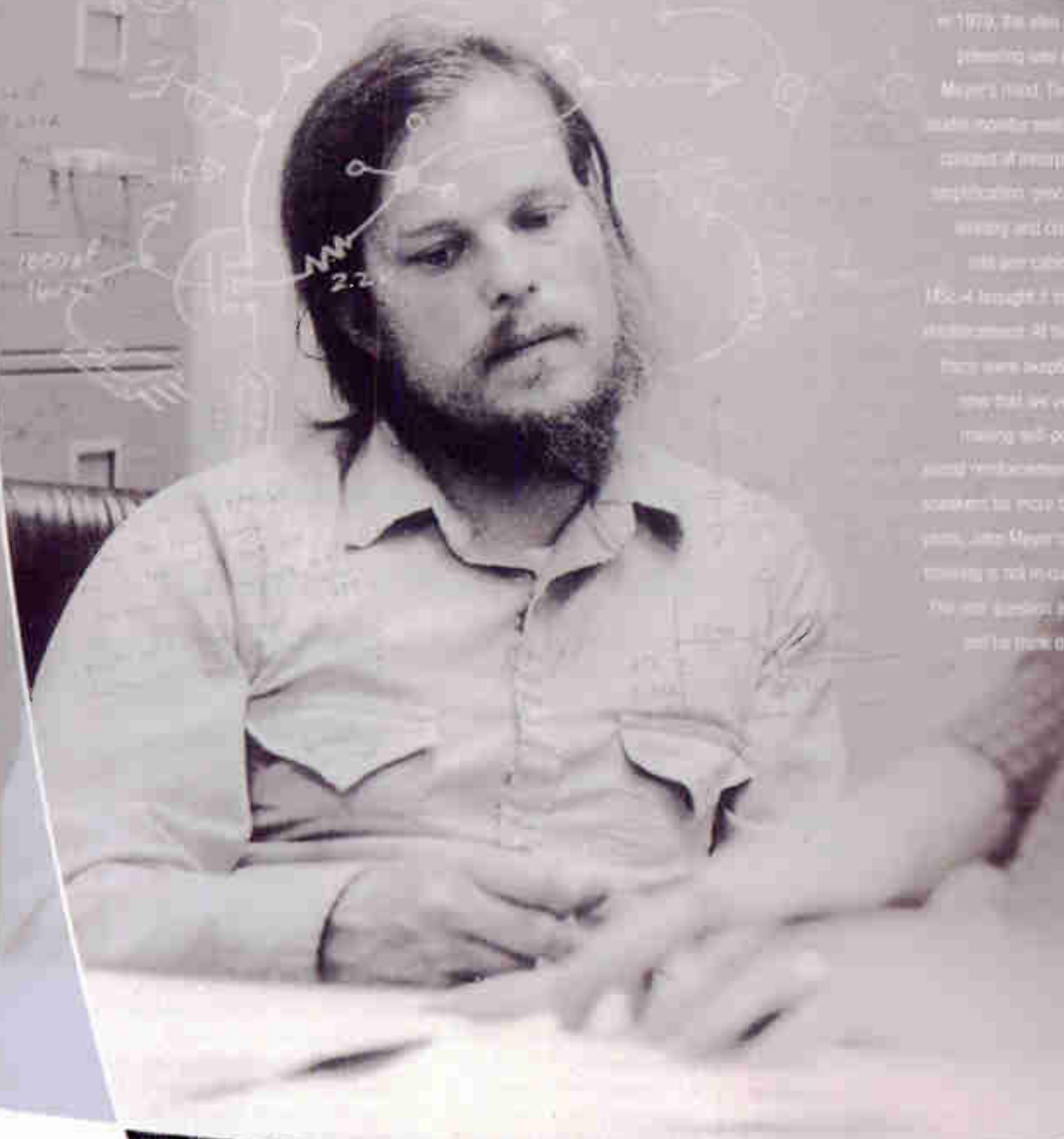
Bruce Springsteen's longtime FOH engineer, John Cooper, is manning a Digidesign 96-input/16-output VENUE board. In addition to mixing the shows, Cooper is also using Pro Tools to record and later remix the songs for a subsequent live release and for use on the Internet.

A new sound reinforcement system at the **Stadium Theatre** in Woonsocket, RI, features a **Mackie Onyx 4880** house mixing console and **EAW AX396** mains, **AX122** subs, **CAZ Series** power amps and **MX8750** digital signal processor; the gear was implemented by **ATR/Treehouse** (Providence, RI)...**Creative Technology's** Los Angeles office has increased its inventory of **L-Acoustics** gear with 68 dV-DOSC and 22 dV-SUB enclosures, as well as 32 LA Series amps...**Lectrosonics** has launched a user's group for its **LecNet Series** of DSP-based products, accessed via www.lectrosonics.com or groups.yahoo.com/group/LecNet2...**Casino Rama's** (Rama, Ontario) 5,200-seat Entertainment Centre now boasts a **Midas Heritage 3000** and **Heritage 4000**; the purchase was made through Toronto-based **PA Plus**...The first **Studer Vista 8** digital FOH board to be used in Paris' theater district has been installed at the 1,000-capacity **Theatre de la Ville**...**Meyer Sound** is supporting **California Berkeley's Center for New Music and Audio Technologies (CNMAT)** effort to create a loudspeaker array capable of mimicking the kinds of radiation patterns exhibited by acoustical musical instruments. For more information, visit www.cnmat.berkeley.edu.

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On the Road

Todd Harris

The godfather of soul, James Brown, was out touring the majority of the summer, playing to mid-sized venues; his tour wrapped up in late September. *Mix* caught up with tour director/production manager/stage manager/monitor engineer Todd Harris as the ensemble was making its way to Las Vegas.

Are you finding it difficult to wear so many hats?

I rely on local production and sound personnel greatly because my only crew I can travel with is a FOH engineer. I started as the FOH engineer three years ago but dug myself deeper since then. The band often jokes to me about the number of hats I wear.

Without carrying much gear, how are things going with house-supplied or rented gear?

I ask for the typical top-shelf mixing desks, line arrays and assorted toys, but we have to be flexible. One night we may be playing in a 1,500-seat club and the next we may be headlining a big rock festival for 100,000. Gavin, our FOH engineer, and I are comfortable with analog and digital boards, so we don't really care if it we get a [Midas] Heritage 3000 or a [Yamaha] PM5D. I would much rather work with the best crew than the best equipment, so I am flexible.

Is Brown on in-ears?

No. We have a very old-school setup and IEMs are not the best choice for him. On occasion, I use them on the horn section and percussion, and it is a real treat—I am a fan!

When you're not on the road, where can we find you?

Back home in the Washington, D.C., area making records in my basement, advancing the next James Brown tour or playing bass with my '80s tribute band, The Legwarmers.

Now Playing

Lamb of God

Sound Company: Eighth Day Sound (Highland Heights, Ohio)

FOH Engineer/Console: Bozz Porter/Yamaha PM5DRH
 Monitor Engineer/Console: Dennis Solomon/Yamaha PM1D
 P.A./Amps: d&b J8, J12, J Sub, B2 Sub, Q1, Q7/d&b C7
 Monitors: d&b M2, C7, C7 sub, C4, B2
 Outboard Gear: dbx compressors, Drawmer gates, TC Electronic D-Two/M-One XL, Yamaha SPX-990/900, Lake Contour, SIA Smaart
 Microphones: Sennheiser e901, e602, e604, e914, e609, e835

Big & Rich

FOH Engineer/Console: Martin Frey/Digidesign VENUE
 Monitor Engineer/Console: Will Wilkison (also audio crew chief)/API Paragon 2
 P.A./Amps: house-provided/EAW SM12 wedges, SB412 drum sub; Electro-Voice P300RL amps
 Monitors: Shure PSM 700 in-ear units, hardwire PSM in-ear packs, Ultimate Ears
 Outboard Gear: Yamaha REV-500s, Lexicon PCM 91, TC Electronic D-Two, Aphex Dominators, Rane Digital MM42 monitor processor, Klark Teknik KT 31-band EQ
 Microphones: Shure Beta 87C, UHF antenna combiner
 Additional Crew: monitor tech Andy Hujdich



PHOTO: NANCY LEE ANDREWS

Heil Sound Gets Inducted

Cleveland's Rock and Roll Hall of Fame and Museum (www.rockhall.com) has added new artifacts from sound company Heil Sound (Fairview Heights, Ill., www.heilsound.com) to augment its technology and music exhibits. Heil provided live sound production in the late 1960s through the 1970s for such groups as The Who, ZZ Top, the Grateful Dead, Joe Walsh, The Eagles, Peter Frampton, Humble Pie, the James Gang and more.

Items on display include the Mavis mixer built for Pete Townshend and The Who's *Quadrophenia* tour, as well as Townshend's guitar and Roger Daltrey's microphone, which is still wrapped in red gaffers tape to prevent the mic from being launched into the crowd as the singer twirled it overhead. Other historic pieces include the Langevin recording console, which was transformed into a live sound mixer for the Grateful Dead, as well as a Heil Talk Box unit (serial #1) that's signed by Walsh and Frampton.

"I am thrilled and honored to have this exhibit represent my body of work in live sound," Bob Heil says. "Those years in live sound were an incredible ride. I started out as this small music store, Ye Old Music Shop in Marissa, Illinois. I was catering mostly to the Hammond organ market, and boy did things change—quickly. Now I look back at those years with amazement."



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China Farbes sings through a Shure Beta 87.

Pink Martini

Bringing together the musical sensibilities of Cuban jazz, classical chamber music and film scores, 12-piece Pink Martini is playing mid-sized halls across the U.S. They'll be taking time out for the upcoming holidays and then go back on the road until next May. *Mix* caught Pink Martini in San Francisco, where they were accompanied by the San Francisco Symphony at Davies Symphony Hall.

Photos & Text by Steve Jennings (except where noted)

Front-of-house engineer Pete Plympton, who has been mixing for the band for the past eight years, is relying on rental gear, finding himself behind a different console every night. "The band is only on 32 channels, and with an orchestra, (taking) up to 56 channels. As for rack gear, when I have the option, I prefer TC Electronic reverbs, dbx 160s and Klark Teknik analog graphic EQs.

"The show is uniquely challenging," Plympton continues. "Orchestras with band shell, orchestras without band shell, very live rooms designed for no sound reinforcement, very dead rooms—they can require completely different mixing techniques. It's a real challenge and still fun. We have a great crew: Charlie Bradshaw is our tour manager,

and Nathan Ostrander takes care of all backline duties."

As the tour is also picking up house monitor engineers, Plympton is well aware of the group's monitoring needs. "This is a very smart band; they listen to each other acaoustically and have very little in the monitors," Plympton explains. "I find that the transducers are the key; it is a fine balance between well-placed pickups and the right microphones. Our strings get Audio-Technica ATM 350s and Fishman pickups. The harp gets a Barcus Berry piano planer pickup with a condenser [mic], and the piano gets two DPA 4021s and a Helpinstill pickup."



PHOTO: AARON SCOTT

Martin Zarzar's drum kit is miked with a Shure 91 (kick), a 57 (snare) and an SM81 (hi-hat, overhead), as well as a Sennheiser 604 (toms). Mics for Robert Taylor (trombone) and Gavin Bandy (trumpet) are Beyer 88s.

The band: China Forbes, vocals; Thomas Lauderdale, piano; Robert Taylor, trombone; Gavin Bondy, trumpet; Paloma Griffin, violin; Brian Davis, conga/drum/percussion; Derek Rieth, percussion; Martin Zarzar, drums; Phil Baker, bass; Timothy Nishimoto, vocals/percussion; Nick Crosa, violin; and Dan Faehnle, guitar



S.F. Symphony house monitor engineer Kirk Schreil, at the Yamaha PM1000, is using between six and 12 inputs, and up to 13 outputs: seven for the band and up to six for the orchestra.



For Thomas Lauderdale's piano, there are two DPA 4021s and a Helpinstill pickup.



S.F. Symphony's associate conductor, James Gaffigan



S.F. Symphony house piano tuner John Pfeifer makes sure the instrument is heard crystal-clear.

David Caldwell, FOH engineer for the S.F. date (Plympton was unavailable) installs the Barcus Berry piezo crystal sensor onto the center rib inside the harp, which is played by a symphony member.



Brian Davis' (left) congas take Shure 57s (above); a Sennheiser 604 mikes his surdu. Seated: Derek Rieth.



From left: Gavin Bondy, trumpet; and Robert Taylor, trombone



Guitarist Dan Faehnle and upright bassist Phil Baker groove out to Lauderdale's piano stylings.



Red Hot Chili Peppers

Longtime Engineer Keeps the Band Groovin'

By Keith Clark

After 16 years of mixing sound for the Red Hot Chili Peppers, you'd think Dave Rat would be a little tired of the band. But nothing could be further from the truth.

Currently in the midst of a world tour in support of *Stadium Arcadium*, which debuted at Number One on the U.S. charts, bassist Michael Balzary (better known as Flea), lead singer Anthony Kiedis, guitarist John Frusciante and drummer Chad Smith are always in fine live performance form. This is confirmed by Rat, founder of Southern California-based Rat Sound, during a conversation after a RHCP headline set at Lollapalooza 2006 in downtown Chicago's Grant Park.

"The Peppers are always just really fun to mix because their music is extremely diverse," he notes. "They'll go from an extremely fast song—like 'Me and My Friends'—and do it over the top, and then switch to John singing a cappella, just him and his guitar, and then they'll go to a slow funk or maybe something pop/radio friendly." Whichever tune the band is enthraling crowds with, Rat's role as front-of-house mixer is to represent the sound of the band's albums and stay focused as the group shifts its musical taste with each new release. "When we started out, it was more of a bass and drums, heavy '70s funk type of sound," Rat says. "The vocals and harmonies have evolved to become a bigger part of their song structure, so I've made the vocals more prominent in the mix. Now, it's a much cleaner sound with an emphasis on clarity."

As he's mixing, Rat is tuned into the P.A.'s volume structure. He comes on strong at the start to get the "wow factor" in play with the audience, and then spends the first half of the show gently scooting down the volume. At that point, he gradually brings it back up to the point where the last song and encore are a bit louder and more dynamic than where the P.A. settings originally began.



Front-of-house engineer Dave Rat

Along the way, another goal is to highlight the unique nature of each song. For example, if a song is quiet, he takes the P.A. to an extreme quiet mode, giving it a "hush feel" for the crowd. This approach presents the audience with a lot of interesting sonic dynamics without generating excessively crushing volume levels. "In a way, it's almost a 'cartoony' mix in comparison to a studio mix, with a lot of saturated color and sound," Rat explains. "By saturated, I'm talking about enhancing and accenting certain frequency ranges to give each song a different and appropriate sonic signature."

As with previous RHCP tours, Rat chose an L-Acoustics V-DOSC line array loudspeaker rig, but it's deployed in an unusual fashion, to say the least. The design stems from a rarity in the touring sound reinforcement world: a call from the band's management to go beyond a standard touring P.A. and do something unique.

"I thought about various possibilities," Rat says. "The band changes the set list every night, and they don't even write it down

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until a half-hour before the show, so it's not like a Broadway show where there's a certain sequence of events that can be programmed into a console," Rat says. "And with the band already providing plenty of spontaneity and variation, adding special effects just did not fit, which I don't prefer anyway. At the same time, I've felt that Quadraphonic is too limited and only applies to audience members lucky enough to be located within the quad coverage field. Plus, it pulls focus away from the stage. I wanted something that would benefit the highest percentage of the audience possible."

The idea that evolved was based on knowledge he acquired while designing Rat Sound's MicroWedge stage monitors. During this process, he did quite a bit of research and was able to prove that loudspeakers have reduced clarity as the signal being provided to them increases in complexity.

"Just listen to a vocal mic through two speakers at high volume and then add in a 50Hz tone at high volume," Rat explains. "It blurs the vocals. Then use two speakers with the vocal in one and the tone in the other. The vocal will stay clear. I believe the primary issue has to do with the speaker efficiency and linearity while the voice coil is centered in the gap. The speaker is less efficient when the voice coil is at its extremes because the 50Hz tone reduces the time that the voice coil is centered. Some monitor engineers run separate instrument and vocal wedges for this reason. What if I applied that setup on a grander scale, as in two P.A. systems?"

The resulting house loudspeaker design



Dave Rat developed this unique P.A. structure: dual L-Acoustics V-DOSC line arrays flown side by side.

comprises dual V-DOSC line arrays flown next to each other on each side of the stage. Via the Midas XL3000 house console, any instrument or vocal can be sent to either the inner or outer loudspeaker arrays. Typically, side-by-side systems would introduce unacceptable comb filtering issues, but because each P.A. is reproducing different instruments, it's not a problem.

"The clarity difference is awesome," Rat enthuses. "We've gained not only the ability to put more speakers out front, but the height of each array can be shorter, so it's helped clear up sightlines. Big credits need to go to management, the production team and the band for supporting this direction, which has made a big difference in sound quality for the audience." Setting up this complex system are five system techs, including longtime lead FOH tech Nick "The Fly" Brisbois and sound crew chief Lee Vaught working with Manny Barajas and Neal Shelton, and David Calandra serving as monitor technician.

"This helps with battling the live sound environment, which usually isn't all that great no matter where we're playing," Rat continues. "There's invariably something going on. Inside, it's an echo roar created by the building structure; outside, there's wind and thermal factors. The mix is designed to work around these distractions and keep the audience focused on the music."

KEEP IT SLIM

While Rat is putting in big effort to keep the band's sonic signature intact, he's not relying on a slew of outboard gear; rather, vocal effects are handled by a single Eventide H3500 Harmonizer and just a single Lexicon PCM60 in play to apply bits of tasteful reverb.

He's quick to add that developing a mix is simply a matter of interpretation, of understanding what the band wants to present and then reinforcing that as realistically as possible. Rat also says that he and the Peppers have developed a level of trust and understanding over the years, resulting in the band letting him do whatever he wants with the sound, the P.A. and the mix.

His interpretation begins with Audix OM7 dynamic microphones on all vocals, Rat's choice for several years. "The OM7 mic element is very close to the grille, so they tend to get quite loud, but with excellent gain before feedback," he explains. "More importantly, they provide a real up-close-and-personal signature—very intimate. I don't want much sound from the room getting into the mics because the audience loses that proximity, that intimacy.

And having the main P.A. feedback with an OM7 is hard to do."

The H3000 has served as Rat's primary console for several years, and he's not compelled to change. He does admit, however, that the thought of a digital console did cross his mind due to the dual P.A., where he could envision being able to program series of scenes to automate input routing to specific arrays. "The problem is that not a single digital console manufacturer offers a manual crossfade between scenes, so it's just too limiting for my needs at this point," Rat says. "I'm currently running about 24 subgroups, so going the analog route keeps me busy. But it's manageable and, at least for now, the right approach."

The stage monitor system originally went out with a digital console but shifted over to a Midas XL4 analog board and a standard effects package to feed a mix of IEM and MicroWedges (of course!) onstage. In addition to the OM7s for vocals, mics onstage include Shure SM57 and Beyerdynamic M88 on guitar, with another SM57 on bass, along with two direct inputs. On the drum kit, there are Shure SM91 and Audix D6 on kick, Shure SM98 for snare and toms, Beyerdynamic M201 on ride and hi-hat cymbals, and AKG C 5600 for overhead.

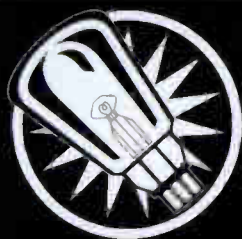
This tour also features an upgraded recording rig, with a 32-channel Mac G5-based Pro Tools system taking AES/EBU output from the Apogee AD-16s driven by Tonelux preamps. A 500-foot LightViper fiber-optic digital snake system allows the Digidesign 192 I/O units and Mac to live just about anywhere. It all fits in 15 rack-spaces and three small Pelican cases, and takes just 15 minutes to set up.

As we finished up our conversation, Rat mentions that after more than two decades of live mixing, taking long tours is not his favorite thing to do. He makes rare exceptions to go out with certain artists, and the Peppers remain at the top of his list.

"The funny thing is that I never wanted to be a sound engineer," he concludes. "I learned to mix sound to test my speaker system designs and to operate the sound systems that Rat Sound rents out. By some roundabout way, I ended up with one of the best gigs one could possibly have, and I'm really grateful for every minute of it."

For an inside look at what goes on behind the scenes of a big concert tour, as well as more about the sound for this tour, check out Dave Rat's daily RHCP blog at www.ratsound.com/cblog. ■

Keith Clark is a freelance writer/editor specializing in professional audio.



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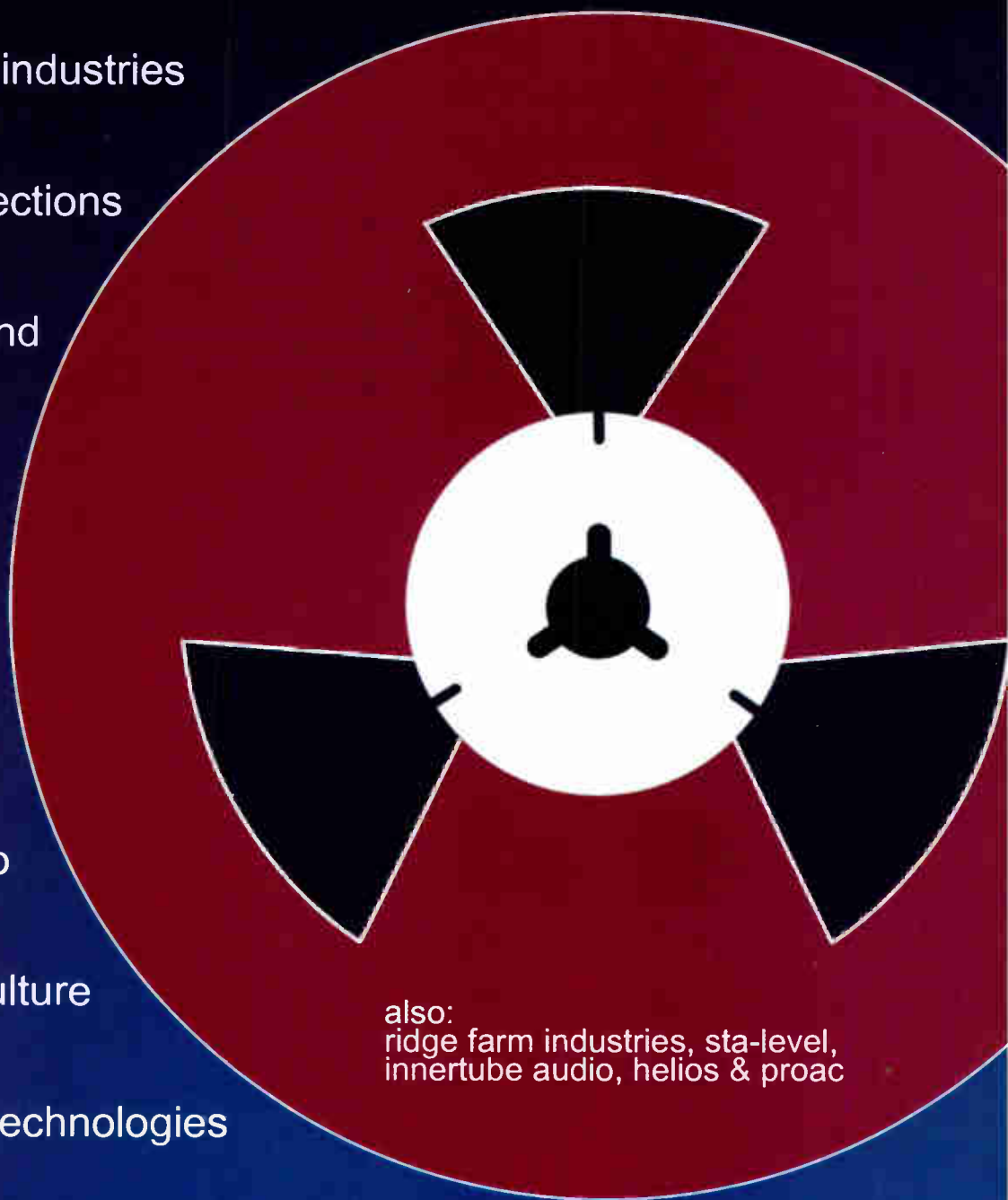
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White Room Studio still runs daily sessions and has turned out records by Aretha Franklin, Electric Six, D'2, Red Hot Chili Peppers, Bob Seager, Tori Amos, Robert Bradley's Blackwater Surprise, the Detroit Cobra's and Kid Rock's "Devil Without A Cause," with a bit of production and writing by the Nehra Brothers.



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WUNDER AUDIO

Wunder Audio started as a quest for the ultimate sound. In 2000, while joining together and completely modifying two Neve 80-Series consoles with the intent of filing them with 1073s, the guys at Wunder acquired 24 modules that were custom made for John Paul Jones. The modules for this one-of-a-kind console were made for this unique "Zeppelin Era" desk. The Zeppelin modules sounded far better than anything that they have ever heard. The amplifier circuits were beefier than the 1073s, the sound had to be attributed to this and the giant transformers. They had the idea of re-making these modules to fit into the 80-Series frame, based on the very same transformers.

They contacted the original transformer maker, who still had the plans and original winding machine. They tweaked the circuit making dozens of improvements, incorporating the best components to achieve the ultimate sound. Tooling required them to make 100 modules, so they decided to make enough for their board and sell the rest. The extra modules sold as well as the modules that were intended for the 80-series board. They decided to make more "PEQ1" modules and Wunder Audio was born.

The quest for the ultimate sound continues as Wunder Audio unveils the Wunderbar Console, which melds the best of the Classic Console format and modern features that are in demand today. The Console utilizes the PEQ1 Channel Amplifier delivering from 12 to 60 channels.

A "Fully Balanced Bussing Scheme" is the heart

of the Wunderbar buffering the ground out of the equation, increasing dynamic range while lowering noise substantially. Transformer balanced direct outputs and inserts throughout. The Stereo Buss has three choices: Wunder, 1272, and 312.

The 1046 Routing modules are Class-A Discrete with transformers, dual input with a fader that is flip-able with the main channel fader. Six busses with illuminated switches, four aux switchable pre or post, Pan Defeat, 48V phantom, and "Opto Silent" mute.

Master Section Control Room Monitor with six



stereo sources, including busses. Mono, Dim, Mute, Solo Clear, on large illuminated switches. Speaker 1, 2, 3, and headphone amp with volume control. Internal routing of sub groups to the stereo buss, eliminating external patching and sparing faders. Eight-fader monitor section with solo, pan, and busses. Talkback into any buss/aux is latching, momentary, or remote. Large illuminated master PFL, AFL Solo switch with Solo level.

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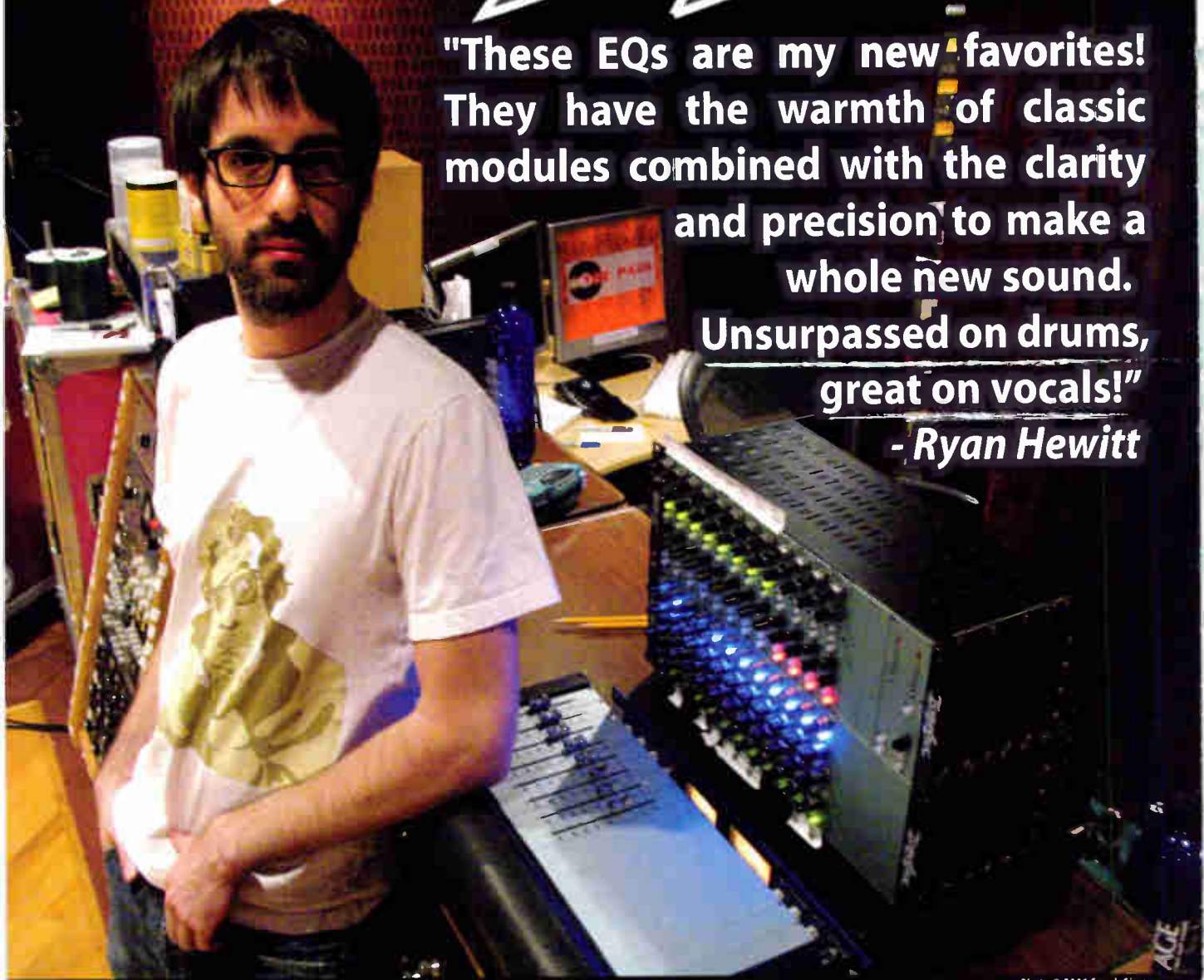


Photo © 2006 Sarah Simon

Engineer for artists such as Alkaline Trio, Blink 182, Ben Lovett
- pictured above in the studio mixing the platinum
Red Hot Chili Peppers double CD, *Stadium Arcadium*.

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World Radio History

TONELUX

Paul Wolff Thinking And Mixing Outside The Box - Literally

Paul Wolff began designing and building things at an early age, along with a desire to blow things up. From grade school science projects turning water into hydrogen and oxygen, to building small explosives he used for fishing, He was constantly creating... something.

With the unwavering support of his musician parents, Paul matured (not really) and found himself as house sound man at DC night club 'The Bayou', working with "new" acts like Foreigner, Pat Benatar and Dire Straits. This eventually led him into the recording end of the industry and Paul moved to a DC studio called "No Evil Multimedia".

Quite the influential studio, the owner had roots with Ric Ocasek and Tom Scholtz, and his studio was the center for the emerging "New Wave" music styles, as well as one of the birthplaces of early Hip Hop. It was here, during a Synclavier seminar, that Paul was introduced to a gentleman who worked for a company that had just acquired API, and Paul's foray into the



Paul Wolff of Tonelux

console business began.

After working several years in the console business with the company, API was put up for sale and Wolff purchased the assets forming API Audio Products, Inc in 1985.

Saul Walker, API's original

founder worked with Paul during this transition and oversaw the first

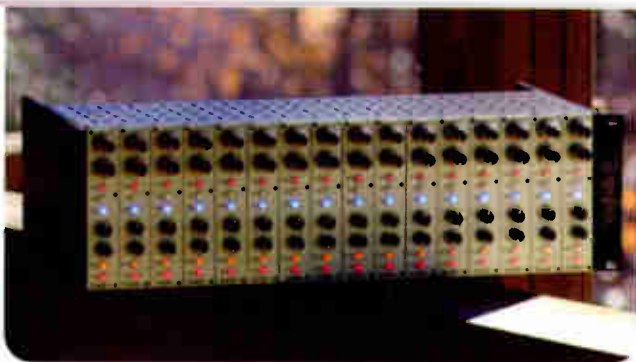
official console refurb and expansion.

In years that followed, Mr. Wolff introduced the first of many new products including the 5502 rack mount EQ, based on the original 550A, then the 550B. Soon after came the 4 channel mic pre, the 3124, the 512b mic pre, etc. Wolff then went on to design the Legacy Console, and after adding Jeff Bork to the team, they designed the Legacy Plus.

In 1999, the assets of API were sold to the ATI Group. Paul stayed with the company and designed several new products like the now famous 2500, the 8200 summing mixer, the 7800 master section, and with the help of Jeff Bork the new Vision console and 7600.

In 2004, recognizing a major shift in the industry, Wolff left the company and formed Tonelux Designs Limited, the concept geared towards the "new studio model", where so much more of the production work is being done in the Work Station, and large frame consoles are not nearly as necessary as they had been in the past. With a new wave of engineers and producers taking the helm, the standard studio layout didn't seem applicable any more. Tonelux offers up the answer with it's

unique modular approach. The DAW has changed the face of recording forever, and as Wolff poignantly puts it, "Today, the choice is being on the train or on the tracks"



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Peter Kato, Producer/Engineer (Interpol, Longwave, The Von Steinkamp)



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Vic's professional career began in 1960 in maintenance at Lansdowne Studios London. Among his engineering successes was a significant modification to the EQ of the studio's EMI console – a design which has been carried over to Thermionic Culture's forthcoming Merlin EQ. Vic progressed up the ranks at Lansdowne to become a mixing engineer in his own right, crafting several hits.

After leaving Lansdowne, Vic started designing his own compressors, one of these compressors was sold to Pete Townshend, and he apparently still uses it today.

Vic then built Maximum Sound. This involved building the studio's 10-channel valve console himself (which is still in use today), based on the design of the EMI at Lansdowne. Vic and the studio acquired quite a reputation for recording successful ska, rocksteady, soul, and rock music.



Pictured above: Vic, past and present

After selling Maximum Sound to Manfred Mann, Vic's next project was Chalk Farm Studios and Mushroom Records. Reggae and soul success soon followed – at one time, eight of the top 50 singles had been recorded at Chalk Farm, Vic having mixed seven of them! Dandy Livingstone (then Trojan's chief producer) made many of his records at the studios. The last studio Vic built was the all valve Chiswick Reach before forming Thermionic Culture.

And finally, a last word from Vic, who makes no apologies for belonging to the old school; *"Audio amplification, compression, mixing took a step backwards when solid state technology was introduced. It's not that I'm anti new technology, far from it, I simply believe the old stuff sounds a lot better."* Vic Keary.

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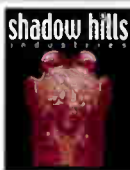


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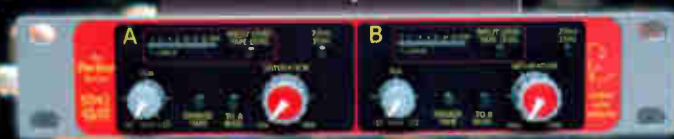
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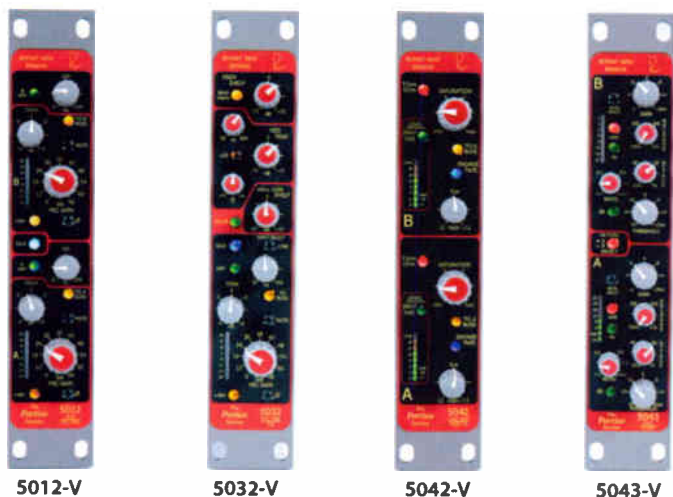
The new Rupert Neve Designs Portico modular preamps and analogue signal processors constitute a range of building blocks that may be used independently or in combination to provide key elements that were traditionally included in large format Sound Control Consoles.



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Custom designed transformers, very short signal paths, minimal negative feedback plus single-sided transformer-coupled amplifier designs form the essential building blocks of Portico Range.



5012-V

5032-V

5042-V

5043-V

The Current Portico Range includes:

- 5012: Mic Pre Duo
- 5032: Single Channel Mic Pre/EQ
- 5033: Five Band EQ
- 5042: "True Tape FX" and Line Driver
- 5043: Compressor/Limiter Duo

Coming Soon:

- 5014: Stereo Field Editor
- 5016: Two Channel Mic Pre DI
- 5082: Vertical Rack Mixer
- 5088: Mixing Console

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The year 1961 was a watershed in technology, witnessing the first human in space and the development of Telstar, the satellite that would link the world for broadcast. That same year also marked the debut of a company that would change how music is made, post production is done and broadcast audio is accomplished. In 1961, Neve began a tradition of innovation and excellence that continues today, 45 years later, and will help take the business of sound into the future.

Throughout the years, Neve would continue to push the envelope of console technology. These consoles would become so popular that their channel strips, including equalization and dynamics, would become available in module form, such as the famous Neve 1073, 1081 and 1084.

Neve continues to manufacture these classic outboard units to the exact specification of these original units. Neve has devoted time to sourcing the same components to ensure the sound remains



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Mercury AM16 - "An American Classic"



Mercury Grand Pre - "The Classic British Alternative"



Mercury M72s - "Vintage V72s" Tone and Craftmanship



Mercury M76m - "Vintage V76m" Tone and Craftmanship



Mercury EQ-H1 - "Vintage Pultec" Tone and Craftmanship



Mercury EQ-P1 - "Vintage Pultec" Tone and Craftmanship



Mercury 66 - "Vintage Fairchild" Tone and Craftmanship



Mercury Recording Equipment Co.

"Plug Into Reality"

Since 1994, David Marquette and Marquette Audio Labs have provided clients with new and vintage recording equipment, as well as, the 'benchmark' in custom racking of vintage modules. With David's years of experience, it was obvious to see, as time passed, the equipment from the glory days was starting to fade. In 2000, with his passionate vision and pride in craftsmanship in the forefront, Marquette started Mercury Recording Equipment Co.

The Mercury product line started with three 'All Tube and All Transformer' classic recreations, paying homage to some of the best recording equipment ever made. The highly regarded Mercury 66, a Variable Bias style Compressor, is a tribute to the Fairchild 660. The Mercury 66, using similar circuitry, tubes, design ideas and custom transformers, recreates the Fairchild's sonic characteristics, performance and features. The Mercury EQ-H1 and Mercury EQ-P1 Program Equalizers have the warm, distinctly rich tube sound desirable for both your analog and digital recordings today. Focusing on tone, the EQ-H1 and EQ-P1 recreate the same sonic qualities as the 'Vintage Pultec' equalizers and are powerful tools to add musicality in your tracking sessions or can bring mixes 'back to life'.

Mercury Recording Equipment Co. later released recreations of two of the most sought after vintage, tube 'Studio Microphone Amplifiers'. The Mercury M72s is a proud salute to the Telefunken/Siemens V72s modules, made in Germany in the 50s and 60s. The V72s is "famous" for being used by George Martin on the early Beatles recordings. The Mercury M76m is an enhanced recreation of the vintage

V76m modules. The Mercury M76m has output attenuation and level controls, as well as selectable input impedance. Other M72s and M76m features include: Phantom, Phase Reverse and a Direct Input, per channel. With Marquette's knowledge of the old Telefunken / Siemens modules, the Mercury M72s and M76m Studio Microphone Amplifier were very successfully recreated.

REVIEWS

"The Mercury M72s is a remarkably versatile recording tool. Getting great sounds on all of the sources I tried was never easier!"

- Barry Rudolph, Mix Magazine

"The Mercury EQs are flawless. I compared them to the two 'vintage' Pultecs I had side by side, you couldn't tell the difference!" "I thought the Mercury 66 sounded BETTER more times than the original 'vintage' Fairchild. When I pulled them both up in the mix I could hear the difference."

- Scott Humphrey, The Chop Shop (Rob Zombie, Motley Crue)

"The Mercury M76m could very well be the ultimate 'vintage-style' mic preamp available today!"

- Pete Weiss, Tape Op Magazine

"The Mercury Grand Pre delivers on its promise of dishing out the classic British sound of yesteryear."

- Michael Cooper, EM Magazine

In 2006, expanding the line to eleven products, Mercury Recording Equipment Co. debuted the M72s/1 and M76m/1, single channel versions of the popular M72s and M76m. In addition, several new recreations were unveiled. First, the Mercury AM16, dual channel, and Mercury AM16/1, single channel, microphone preamplifiers. This is a tribute to one of David's favorite microphone preamps, the 1960s, 'Vintage Langevin' AM16. This 'American Classic' is a Discrete, Class A circuit known for being very open and musical. Secondly, Mercury completed a long awaited project, the Mercury Grand Pre, a Solid State, Discrete, 1970's British inspired microphone preamplifier. The Mercury Grand Pre is available as a dual channel version or the Mercury GP1,

single channel version. Based on a 'Vintage Calrec' circuit, the Grand Pre is not a "New Twelve Seventy Two clone", but rather, the 'New Classic British Alternative'.

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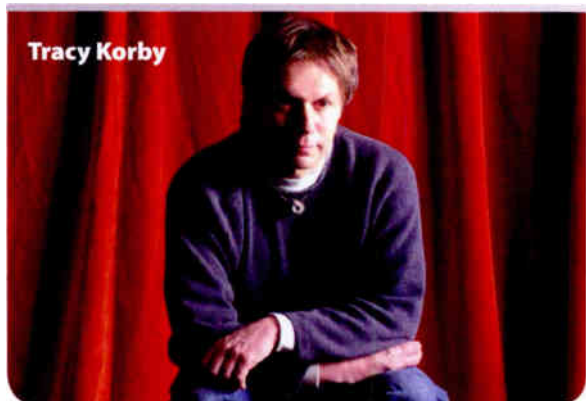


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For the past two decades, Korby Audio Technologies' world renowned *Restore Vintage Microphones Program (REVAMP™)* has repaired, restored and otherwise resurrected the most revered microphones in history for some of the finest names in audio on the planet.

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Though steeped in the heritage of legendary classics, these are unique, new products. Each and every proprietary capsule and microphone is handmade and hand-assembled from start to finish in the Korby facility in Nashville. Korby's current product roster includes three new microphones (**The KAT Blue, KAT Red, and KAT FET**) as well as the critically acclaimed **KAT Hot-Swappable Capsule System** that lists



KAT Blue, KAT FET and KAT Red

Peter Gabriel, David Gray, Kid Rock and Kelly Clarkson among its many owners.

Korby Audio Technologies products aren't sold just anywhere. Vintage King has carried our entire product line since its inception and serves as our exclusive U.S. distributor. Every product Korby Audio offers is hand-tuned and customized to the specific needs of the client. A service you won't get from a catalog mic.

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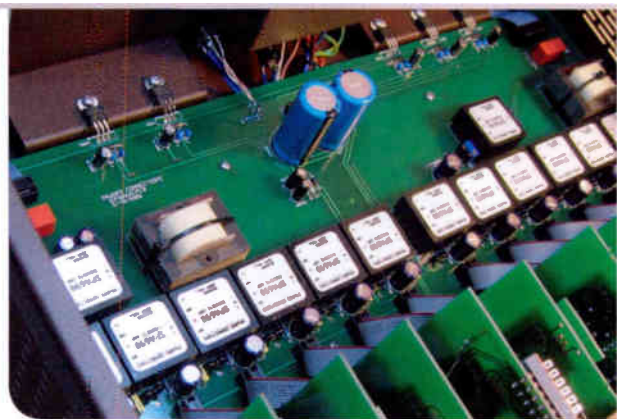
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INWARD CONNECTIONS

VINTAGE SOUNDS FOR TODAY

For more than 30 years, Steve Firlotte has been an integral part of the world of professional audio, beginning with his stint on the road doing sound with some of rock and roll's most legendary bands; to working as a technician for a Los Angeles manufacturer of recording consoles. In 1987 he decided to bring his years of sound experience to the marketplace by designing and manufacturing his own line of audio products aimed at the discriminating professional. Since that time, Inward Connections products have become a mainstay in top commercial and home recording studios across the country.

TSL-3. In 1995, Inward Connections & BBAT Productions put their vision together to design the original Vacuum Tube (VacRac) Modular System. Over the next few years, an overwhelming demand for a 2-channel stereo version of the original VacRac TLM-1 modular limiter resulted in the development of the TSL-3 Tube Stereo Limiter. The TSL-3 is a dual limiter in a 3-rack space unit with self-contained vacuum tube regulated power supply, the only one of its kind that gives the tube limiter its own signature sound. The circuitry in the TSL-3 is identical to the original VacRac TLM-1, but its physical appearance now offers a new vintage look such as larger knobs, more noticeable assigned switches and 3" x 3" VU meters. Rugged construction and high-end audio design has always been the standard at Inward Connections. The sound and quality of the VacRac Limiter has become the norm in all studio applications as well as in mastering.



DEQ-1. Subsequent to developing twelve 4-band discrete parametric equalizers for 16 Ton Recording Studio in Nashville, Inward Connections founder Steve Firlotte realized that a dual 6-band unit would also be perfect for studios and, according to recent comments by audio professionals, "would rock as a mastering tool." Utilizing the SPA690 all discrete amp block designed by audio electronics legend John Hall, the DEQ-1 Discrete Parametric Equalizer possesses a noticeable wider stereo image, a greater dynamic range, tight low-end, smooth mid-range and sweet high-end presence. One of the special characteristics of the DEQ-1 is that every control potentiometer has 39 detent positions. This vintage-looking parametric equalizer features bell/shelving on the lowest and highest bands and each band has its own bypass, plus master bypass. Inward Connections took on the challenge of developing a new breed of equalizer which will certainly place it in a class of its own.

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-Michael Wagener



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"I think this is one of the most musical sounding eq's i have ever heard. It immediately turned a paper thin snare sound into a phone book!!! Insane!" -Joe Barresi



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TG1

"I would not track with any other compressor. It takes great music and makes it better." -Mike Caffrey, Tape Op Magazine



MINI RACK MIXER

"I am absolutely stunned by your mixer. It may be sacrilegious to say, but the Chandler has become my preferred choice in virtually every instance that I would have normally desired a vintage Neve console..." -Michael Beinhorn



CHANDLER LIMITED

RE-CREATING AUDIO ROYALTY

Wade Goeke is the man behind Chandler Limited, a boutique audio company intent on taking the legendary designs of EMI and Abbey Road and bringing them into your studio.

Wade's quest for the ultimate in gear design took him from his home state of Iowa at age 18, to Los Angeles. As an aspiring young musician, he played in bands and worked a variety of jobs including rebuilding concert lighting systems, working in studios and repairing and testing recording equipment. From this exposure, he developed a drive to make his own gear from spare parts because that's all he could afford. His "tinkering" with these spare parts led him to go out on his own and sell a couple of units a month just to get by. Then in 1999, Wade started Chandler Limited.

A unique combination of technical expertise, a love for music and hands-on studio experience has given Wade a user-perspective that is the foundation upon which Chandler Limited stands. Recalling the many times he was told, "It'll never work," Wade has remained true to his vision and has proven that it can work!

And that is why EMI and Abbey Road asked Chandler Limited to remake some of their historical and legendary vintage gear. The same gear that captured the warm and soulful sounds of the Beatles and many other greats and poured them into your ears and hearts.



Pictured above: Chandler's EMI TG12413 Limiter Plug-In

Visit their website and read about all their many new and exciting products. And stay tuned for: The Chandler Limited Germanium Tone Control EQ and several new Abbey Road/ Chandler Limited hardware pieces and plug-ins, available soon!

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is compact and powerful, truly a "nearfield on steroids." While exceptionally neutral and designed for critical listening, the MM27 is still very capable of rocking the house. It redefines the definition of a main monitor -- a "Micro Main™" monitor. The only monitor you may ever need.

sub motor structures are locked together the opposing forces cancel out and the cabinet remains rock steady even at very high output levels. There is no need for bass management in 5.1 systems because the MicroMain27 is truly a full-range monitor. The speaker can be placed either vertically or horizontally using the included pedestal.



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Montreux Jazz Festival



VENUE live sound environment

Digidesign would like to thank Claude Nobs and Montreux Sound Director Patrick Vogelsang for inviting us to participate as the official audio sponsor of the 40th anniversary Montreux Jazz Festival. The choice of VENUE live sound environment, Pro Tools[®] recording workstations and DigiDelivery[™] file transfer systems for all stages established a new standard for audio quality, workflow, and guest mixer adoption in a festival setting. Digidesign is honored to contribute to the continued spirit and success of the Montreux Jazz Festival.

McCune Sound

74 Years and Still Going Strong

For many local crews, the events and installs are their calling cards. This also holds true for McCune Sound (San Francisco, www.mccune.com), but it's the company's 74-year history in the Bay Area and Southern California that gives them an extra edge.

Third-generation owner Allan McCune comes from a strong family lineage: His grandfather, Harry McCune Sr. (the company's founder), started the business in 1932, building a sound system while working as an auto mechanic. He built several before he made one big enough to handle a dance band. "He was working at a bench and the guy next to him built a little sound system out of a car radio," Allan McCune recalls. "He thought it was cool and made a little microphone. He would rent out the system and himself for \$1 on a Saturday night and give it away for free on a Friday night. It got really popular and he started charging \$1 for Friday, \$1 for Saturday. He built a second sound system and hired a friend, and it just evolved."

By the late '60s, McCune Sound moved beyond rentals and started doing shows, which led to "hot-rodding" their systems to be powerful enough to go out with acts such as the Grateful Dead, Jefferson Airplane, Creedence Clearwater Revival and others. "During this time," McCune says, "we talked to manufacturers to build better sound systems, speakers, amplifiers and mixers. Our clients were asking for more. John Meyer walked in the door during this time. My father took John out to the warehouse and took out what was considered a very good speaker at the time, an Altec 604, and said, 'Listen to this. Can you make me a speaker that is 10 times as powerful as this?' And we gave him the dimensions, which were big enough to fit into the belly of a [Boeing] 727 so they could be air-freighted around. About nine months later, John and our chief engineer at the time, Bob Cavin, came up with that speaker, which was a JM 3.

"They were an immediate hit. We were also building mixing consoles. Bob Cavin was a pioneer in designing and building consoles. Our systems were being used on Broadway, touring acts and Las Vegas show rooms." Taking these systems out to Broadway was Abe Jacobs, who was "the first of the modern sound designers. Abe got his start at McCune touring with Peter, Paul and Mary and several other acts. Abe moved to New York and worked on *Jesus Chris Superstar*, *Evita*, *Beatlemania* and many other shows using our equipment.

"When you look back, you think of how obvious all this stuff is: having an onstage monitor mix or having a stage monitor, all the processing that is used. The first time that a stage monitor was used that we know of was for Judy Garland. It was late in her career. My father and grandfather were working on her show at the San Francisco Civic Auditorium. The rehearsal was not going well.



PHOTO: DOUG SUMNER

Allan McCune inside the company's warehouse

My father came up with the idea of pointing a speaker at her. He jumped in the truck and dashed back to the office, grabbed a speaker, brought it back, put it on the corner of the stage, took a feed off the main system, turned up the amp and, like magic, the artist was happy.

"Live sound was the stepchild of radio and recording at that time. We bought radio or studio consoles and had to beef them up so they could take going in and out of trucks without failing." From these few pieces of modified gear have come a huge selection, including a full complement of proprietary and Meyer speakers; and Midas, Soundcraft, Mackie and new Yamaha digital consoles.

McCune has just wrapped up the six-stage Monterey Jazz Festival and will be heading south to the L.A. Coliseum to install a line array system for the USC marching band for home games. "The marching band has got a sound designer, and we're bringing in a very substantial sound system: big Meyer line arrays, a Yamaha PM5D digital console," McCune relates.

McCune says the company has succeeded so long because "we've been able to survive the mistakes; we all make mistakes. Any job that has a problem becomes a *big* problem. If you do the opening of a Little League baseball season or soccer season with one mic and there's a problem, it's a huge problem as much as doing an outdoor festival for 100,000 people. Sometimes doing a large event with a big crew is easier because if you have lots of mics onstage and you lose one, not many people are going to notice. But [if] they're announcing the teams and you don't hear somebody's kid's name called, that's *huge*. I would much rather deal with an outraged rock 'n' roll star than one of those kid's outraged mothers who did not hear their child's name." ■

Sarah Benzuly is Mix's managing editor.

Soundcheck doesn't have to be so painful.



The great thing about the Aviom system is that it puts control in the musicians' hands. The units are easy to set up and troubleshoot, and they function great in day-to-day use. As a musician and engineer myself, I couldn't ask for more.

Matthew Peskie, Jars of Clay
Production Manager

Musicians and engineers alike know that, even under the best of circumstances, soundchecks can be tedious and frustrating. By giving performers the ability to adjust their own monitor mixes, Aviom's Pro16™ Monitor Mixing System guarantees a smoother, faster soundcheck – with better results in less time.

Live performance is always unpredictable. No matter what combination of wedges, headphones, and in-ears you're working with, Aviom's Pro16 Monitor Mixing System makes soundcheck – and the gig itself – a better experience for all.

To learn more about Aviom's solutions for Live Sound, visit www.Aviom.com



AVIOM

Welcome to AES!

The product information in this guide was supplied by the manufacturers. Specs, prices and availability may change, so readers should contact companies directly for more information; Websites are provided for your convenience. And if you can't make it to AES in person, don't worry—we'll provide complete coverage of the show highlights next month and at www.mixonline.com.

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AC POWER PRODUCTS



MPATHX SMARTTRACK

mPATHX introduces a SmartRack for every application! New features include 2,400-watt capacity; front panel DC, AC and USB connections; sequencing of all AC and DC receptacles; a full accessory line; and more. SmartRack kills the heat, weight, noise and cost of wall warts, while delivering power and data at peak efficiency over one cable. AES booth #143. www.mpathx.com

APC AV S20: Based on the award-winning APC S15, the S20 power conditioner with battery backup can be fully monitored and controlled over the Internet or via RS-232 port. Built-in environmental monitoring measures and reports ambient temperature (included) and humidity (sold separately). The S20 also features surge protection, isolated noise filtering, automatic voltage regulation and pure sine wave battery backup. A/V administrators now have an all-in-one, network-manageable power-protection system to ensure the availability of critical A/V components. www.apcav.com

EQUI=TECH ET20WQ: Equi=Tech introduces the company's latest version of large-scale balanced power products, the Model 20WQ, a 200-amp-rated, all-in-one wall cabinet system for hard-wired AC installations. The product has double the capacity of any of the company's previous models, and features 20 branch circuits for wiring balanced AC into a studio or SR system. AES booth #1422. www.equitech.com

ACOUSTICAL MATERIALS



ACOUSTICAL SOLUTIONS SOUND BARRIER, ALPHARESILIENT ISOLATION CLIPS: AudioSeal Sound Barrier and AlphaResilient Isolation Clips are used for achieving high-STC ratings with new or existing wall or ceiling construction. Used together, the products can achieve a Sound Transmission Class 58. Clips typically required on only one side of an assembly. The AudioSeal Sound Barrier weighs 1 pound/square foot and is 1/8-inch thick. AES booth #717. www.acousticalsolutions.com

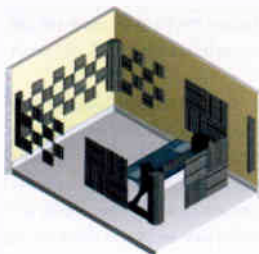
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BAG END E-TRAP: The E-trap is an active, electronic low-frequency acoustic absorber designed to be an alternative to "traditional" passive bass traps. The E-trap offers a precisely tunable tool to attack the very worst problems with a high degree of effectiveness in a fraction of the space (18x13x10 feet). It also offers a practical, low-cost solution for existing rooms with problems and where room redesign or large passive absorbers are not viable options. AES booth #626. www.bagend.com



RPG ACOUSTICTOOL PACKAGES

RPG's new AcousticTool™ packages offer the project studio owner an affordable, aesthetic, fabric-finish, Class-A fire-rated, high-performance pre-engineered room treatment solution. The AcousticTool packages usher in a new era of versatility with the RPG Room Scaling Matrix™, allowing users to quickly and easily configure their package to virtually any size room.



RPG STUDIO IN A BOX PACKAGES

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DACS EIGHTCH: The Eightch is an 8-channel volume controller. Each channel has a trim pot with a range of around 12 dB. A single knob controls the master volume, and tracking is extremely accurate. The unit uses THAT's InGenius balanced input chip and 2181A trimmable VCAs. Specs: noise, -89 dB; THD @ 0 dB 0.0032%; crosstalk, -87 dB; TRS I/O. Price: \$1,120. AES booth #1234.
Dist. by Independent Audio
www.independentaudio.com

JLCOOPER ELECTRONICS ES-4/100 MIDI: ES 4/100 MIDI is our newest, low-cost Edit Suite Series (deep-profile) automation controller. It features four 100mm touch-sensitive, motorized faders, bank-shift buttons and function keys. Support for Pro Tools, Nuendo, Digital Performer and Logic via MIDI.

JLCOOPER ELECTRONICS FADERMASTER 4/100 USB: FaderMaster 4/100 automation controller features four 100mm touch-sensitive, motorized faders, bank-shift buttons and function keys. USB support has been added for Mac OS X systems, with custom software support for Pro Tools, DP Final Cut Pro, Logic and other Mac OS X native apps. www.jlcooper.com

SPL VOLUME2, VOLUME8: These 2- and 8-channel monitor controllers are designed with active switching to prevent the disadvantages of passive circuitries that result in impedance variation and degraded linearity in frequency response. Volume2 features balanced XLR I/Os; Volume8 uses DB-25 connectors. Both units feature illuminated, passive mute switches. AES booth #1125. www.spl-usa.com

SYMETRIX LUCID GENX192: This advanced, affordable master clock is perfect for multitrack recording, mastering, on-air, DAW and desktop recording environments. Features jitter input filtering, drop-out protection, termination sensing, flexible format conversion, the world's easiest interface and the ability to output two simultaneous frequencies up

to 192 kHz. All jitter is measurable, but the GENx192 will output a clean, ultralow-jitter, rock-solid clock. www.symetrixaudio.com

COMPUTER SOFTWARE & PERIPHERALS



URS CLASSIC CONSOLE STRIP PRO

The URS Classic Console Strip Pro is the ultimate in-the-box multiconsole mixing plug-in, offering near-zero latency, 48-bit double-precision processing. Features selectable palettes of input stage tape, tube and transformer colorations; several console EQs per band; and fully adjustable 1975 Classic Channel Compressor with quick preset starting points. Signal flow display indicates compressor path and status, LP/HP filters and EQ sections. www.ursplugins.com

ABLETON LIVE 6: Live 6 offers QuickTime video support, a professional multisample library and customizable racks of instruments and effects. Live 6 also delivers multikore support, enhanced project management tools and improved MIDI control. www.ableton.com

BIAS PEAK PRO 5 XT: BIAS Peak Pro XT 5 includes Peak Pro 5 (stereo audio editing, processing and mastering app for the Mac), SoundSoap and SoundSoap Pro restoration plug-ins, and the new Master Perfection Suite. Peak Pro 5 XT handles everything from serious sound design for film, video or multimedia, to rapid-fire broadcast editing, to music production and mastering. AES booth #134. www.bias-inc.com

CAKEWALK SONAR 6 PRODUCER EDITION: SONAR 6 Producer Edition takes you from inspiration to masterpiece faster than before. Change the way you work with instruments with SONAR 6's innovative new Active Controller Technology™ (ACT). Tighten up your entire band with the new AudioSnap™ feature set. And sound better with the new VC-64 Vintage Channel™ and SONAR's 64-bit double-precision mix engine. AES booth #1426. www.cakewalk.com

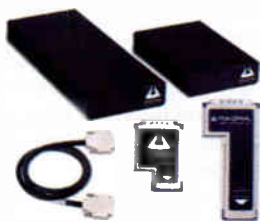
CENTRANCE IDEAL DRIVER: The Ideal Driver for FireWire audio interfaces features one-third of the latency and higher stability than drivers that typically ship with interfaces. The \$39.95 Windows software is compatible with ASIO-2, GSIF-2 and MIDI applications, and supports audio at 16- or 24-bit and 44.1 through 192 kHz. It is compatible with most audio hardware, including Alesis, Apogee, Behringer, Focusrite, Mackie, M-Audio, PreSonus and Tascam; new support is added regularly. AES booth #1412.
www.centrance.com

JLCOOPER MCS-3800 MAC OS X SOFTWARE: JICooper releases Universal Binary versions of USB and Ethernet software for its MCS-3000 Series. Combined with either the USB interface card or Ethernet card, you can control Mac OS X native A/V programs. Support for Final Cut Pro, Logic, Pro Tools, DP and custom keyset editor for other apps. www.jlcooper.com

MAGIX SAMPLITUDE 9: Samplitude 9 is setting new standards and was released in August 2006. AES booth: #1615.

MAGIX SEQUOIA 9: The high-definition digital recording/editing/mixing software for the PC, Sequoia 9 is setting new standards. Stop by our booth or visit our Website and preview the new version. AES booth: #1615.
www.synthax.com

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MAGMA EXPRESSCARD-TO-PCI EXPANSION

ExpressCard-to-PCI expansion chassis provides a simple solution for adding PCI cards to laptop computers through the ExpressCard slot on the new Apple MacBook Pro and many PC laptops. Practically any type of PCI card can be used in the Magma expansion chassis, ranging from audio processing, video capture, test and measurement, SCSI, SATA and more.

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adding PCI cards to PCI Express-based computers, such as the Apple Mac Pro and G5 (PCIe). Magma can be upgraded to PCI Express. Purchase the Magma x1 PCI Express host card (Model PEHIFX1) for \$299. This upgrade provides an easy migration path to new computers without replacing your valuable PCI hardware.
www.magma.com

MINNETONKA SURCODE FOR DOLBY PRO LOGIC II: Audio professional everywhere can now encode 5.1 surround mixes into stereo sound files within Pro Tools. Surround ambiances, sound effects and music stems can be pre-encoded for delivery within stereo cues, and the resulting mix is stereo-compatible. Up to six channels are encoded into an Lt/Rt file. Encoded media is backward-compatible with Dolby Pro Logic receivers and decoders in use worldwide. AES booth #1540.
www.minnetonkaaudio.com

MOTU DIGITAL PERFORMER 5.1: Digital Performer lets you record, edit, arrange, mix, process and master MIDI and audio tracks simultaneously to produce musical recordings, soundtracks for film and television, and other audio production tasks. Version 5 adds track folders, the unique Meter Bridge™, new editing tools, QuickTime streamers and punches, and six new instrument plug-ins, including the analog-style BassLine™ bass synth, highly programmable two-oscillator Modulo™, Model 12™ 12-part drum module and imaginative and powerful Proton™ FM synth.
www.motu.com

NEXT GENERATION SOFTWARE NGWAVE V. 3.4: This fast, low-cost audio editor for Windows features support for WAV and MP3 files, full 24-bit/192 support, MIDI hardware control, integrated metronome, built-in audio mixer and more.
www.ngwave.com

SIA SOFTWARE SMAARTLIVE V. 6: This significant update includes a host of new features and a reworked architecture that allows it to run native under Mac OS X and Windows from the same unified source code. In addition to its improved cross-platform functionality, V. 6 features a streamlined user interface and an advanced feature set. The improved environment enables users to dive deeper into the power of the software while preserving its renowned usability. AES booth #518.
www.siasoft.com

SONIC STUDIO SOUNDBLADE: This host-based app for Mac OS delivers exceptional value for complete stereo production. Features Audio Units and VST plug-in support, unique four-point editing with EFM, instant PQ creation, delivery of background CD "refs" and DDP file sets, and optional restoration tools including NoNOISE. AES booth #1349.
www.sonicstudio.com

STEINBERG MEDIA TECHNOLOGIES CUBASE 4: Cubase 4 is the next generation of Steinberg's legendary line of digital audio workstations. New technologies include VST3 and ASIO 3, new synth engines, a streamlined GUI, Yamaha hardware integration, and MediaBase content management and control room routing. Features include 34 new 64-bit plug-ins, new VST instruments with SoundFrame sound management, instrument tracks, track presets, configurable channel strip, mixer enhancements, notation enhancements, advanced real-time transpose and drag-and-drop inserts. AES booth #926.
www.steinberg.net

STUDIO NETWORK SOLUTIONS POSTMAP: Indexing, enhanced metadata, workflow. Whether it's on your SAN, file server, a pile of FireWire drives or a stack of DVDs, locate the file you need instantly. Postmap™ includes a suite of customizable features that can address the needs of any creative workgroup—large or small, local or remote, Mac or PC. AES booth #447.
www.studionetworksolutions.com

SYNCHRO ARTS VOCALIGN PRO V. 4: Automatic audio alignment software (Audio Suite plug-in) is now available for Intel-based Macs. Demos and software updates that support Apple's new Intel-based iMac, MacBook Pro and Mac Mini computers are available from our Website. AES booth #826.

SYNCHRO ARTS VOCALIGN PROJECT: Automatic audio alignment software, VocAlign Project for Pro Tools (Audio Suite) and VocAlign Project (stand-alone) are now available for Intel-based Macs. Demos and software updates that support Apple's new Intel-based iMac, MacBook Pro and Mac Mini computers are available from our Website. AES booth #826.
www.SynchroArts.com

THE SOUND GUY SFX MACHINE PRO 1.01: SFX Machine Pro lets you create your own audio effects from scratch. SFX Machine Pro comes with more than 300 effects and a preset editor that provides access to the underlying modular synthesis engine. The plug-in provides host tempo sync, and includes an output limiter, automated parameter control and a Randomize button.
www.sfxmachine.com

VIRTUAL KATY VK 2.2: VK2 is the ultimate auto-conform and change management tool. VK2 allows users to analyze all major formats, preview changes, trace historical elements, rebalance movies and process up to 2,500 picture edits in less than a second. Packaged with all of the slick features Virtual Katy has to offer, Pro Tools users can use VK2's powerful management features for \$995. AES booth #1515.

VIRTUAL KATY VK CONFORMER: Designed for conforming and non-destructively recompiling Pro Tools sessions, VK Conformer is cut from the original Virtual Katy software that was put to the test on Peter Jackson's *The Lord of the Rings* trilogy. Import an Avid change note or a CMX 3600 EDL, and conform your session to match the picture cut. Easy to use and fast. Price: \$395 USD. AES booth #1515.
www.virtualkаты.com



XO AUDIO XO WAVE: XO Wave not only brings RedBook CD mastering to Mac OS X, but also offers multitrack recording, editing and mixing; real-time effects (both built-in effects and Audio Units); real-time crossfades; 64-bit computation; effects automation; video sync; QuickTime export; support for ISRC, UPC and CD Text; and more. Price: XO Wave Open (Linux), free; XO Wave Free (Mac OS X), free; and XO Wave Pro (Mac OS X), \$85.
www.xowave.com

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CONNECTIVITY

APHX SYSTEMS MODEL 828 ANACONDA: This 64x64 digital snake is the perfect interface for the Aphex 1788A preamp. Features include eight ADAT I/Os (64-channel bidirectional) and eight word clock outputs; internal precision word clock and external word clock reference input; Ethernet connector for control and metering; and completely redundant power supply and fiber systems. AES booth #813.
www.aphex.com

GEFEN 4X1 DVI DL SWITCHER: The 4x1 DVI DL Switcher provides access to four PC and/or Mac computers using two dual-link DVI displays and USB 2 keyboard/mouse control. Ultrahigh-definition resolutions are supported up to 3,840x2,400 on two parallel displays, providing the ultimate in integrated HD computer workstations. Video and control signals are "switched" for each computer upon selection using the IR or wired remote. RS-232 serial communications systems also supported. AES booth #1108.

GEFEN CAT5-7500 HD: The CAT5-7500 HD extender employs cutting-edge technologies that extend uncompressed DVI HD video over Cat-5 cables up to 150 feet. The plug-and-play sender/receiver system extends two DVI displays and computer keyboard/mouse away from the computer while sustaining HD video and USB 2 devices. RS-232 and audio components are also supported. This solution is tolerant of Cat-5 cable skew variations, able to supremely perform in patchbay scenarios and resistant to electromag-

netic interference. AES booth #1108.
www.gefen.com



HARRISON X-ROUTER DIGITAL AUDIO ROUTER: Harrison's Digital Audio X-Router features 1,536x1,536 crosspoints with eight MADI I/Os and four Gigabit Ethernet I/O ports. It is a companion product to Harrison's X-Engine Native Engine DSP processors. These new X-Range system components dramatically reduce system costs while maintaining Harrison's "no-compromise" audio quality, scalability and long renewable life cycle. The X-Router and X-Engine processors will be provided with Harrison digital audio console systems. AES booth #941.
www.harrisonconsoles.com

LINK HYBRID AUDIO AND DATA MULTIPAIR: Link's hybrid cables are designed for fixed installation and mobile applications and to facilitate audio drive rack and data signals. It features 12 and 24 individually jacketed shielded audio pairs with two integral Cat-5 UTP Ethernet cables for data and/or digital audio transmission. Each analog pair has two insulated twisted conductors, drain wire, aluminum/mylar

foil shield and jacket. The Cat-5 has four data pairs (24AWG) and overall tape. Available in 1,000-foot lengths.
www.linkusa-inc.com

NEUTRIK 4-POLE Y-SPLIT OPTICALCON: Neutrik's 4-pole Y-Split OpticalCon offers four multimode fibers within two OpticalCon connectors on each end of an assembled Y-split cable. Perfect for high-bandwidth audio and video or additional control signal transmission, Y-Split OpticalCon is an ideal solution when a two-fiber system is insufficient. The Y-Split has superior cable retention, features a push-pull locking mechanism and protects against dirt and dust via an automatically operated sealing cover. AES booth #1002.
www.neutrikusa.com

RADIAL ENGINEERING JX44 AIR CONTROL: Remote-controllable signal distribution system for touring features four guitar inputs (two with Drag™ control, two with level trims), built-in JDI for re-amping or acoustic guitar, effects loop for local pedals, SGI™ transmit/receive loop for remote pedal board, tuner output, auxiliary output and four guitar amplifier outputs (isolated to eliminate ground loops), each with ground lift and 180-degree polarity-reverse. Should a wireless system go down, a Panic button re-routes guitar 1 input to amp 1 output. AES booth #1047.

RADIAL ENGINEERING SW8: A switcher for touring where backing tracks are employed and redundancy is required in case of system failure. Features two 8-input sets with -10dB, ¼-inch jacks and +4dB balanced DB25s. Outputs are balanced +4 dB

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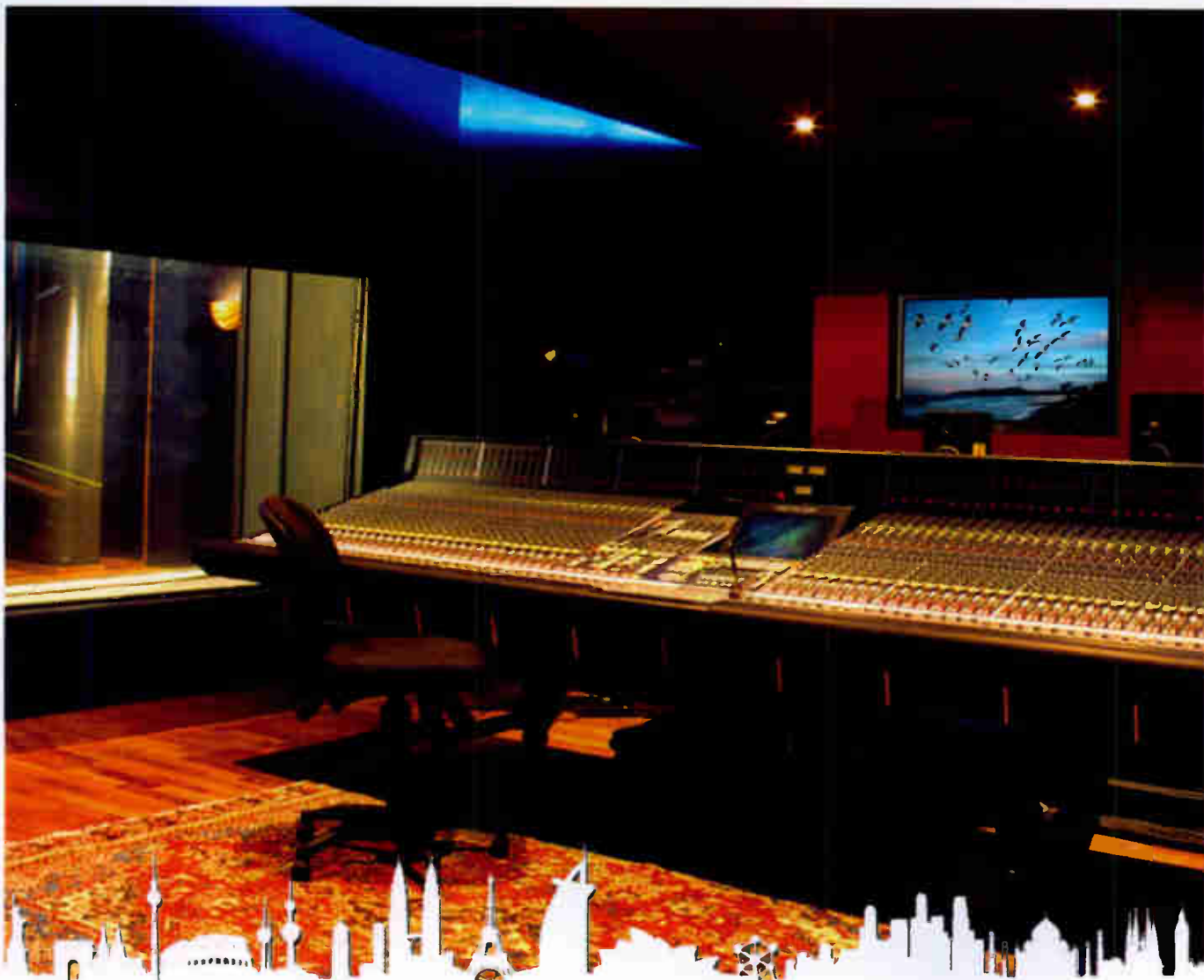
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or isolated mic-level XLRs. Input set is selected via front panel switch or remote. Automatic signal detection monitors tone for signal loss and auto-switch to an alternate machine or contact closure to set off alarm. Link function allows multiple SWBs to be cascaded together. AES booth #1047.
www.radialeng.com

DIGITAL CONVERTERS

FOCUSRITE SAFFIRE PRO 26 I/O: Combines eight Focusrite preamps with 16 channels of ADAT I/O and two channels of S/PDIF, offering 26 channels of simultaneous I/O.

Saffire PRO also features two "superchannels" with instrument input and variable impedance, MIDI In/Out, and front

panel level dim and mute controls. Also included is a free suite of Saffire VST/Audio Units plug-ins. AES booth #318.
www.focusrite.com

GRACE DESIGN M802 A/D: The m802 A/D is a reference-quality, 24-bit/192kHz, 8-channel A/D card option for the m802 high-fidelity remote-controlled mic preamplifier. AES booth: #837.

www.gracedesign.com

LYNX STUDIO LT-HD AURORA PRO TOOLS INTERFACE: The Lynx LT-HD L-Slot expansion card for Aurora 8/16 converters provides digital I/O in a format recognizable by Pro Tools HD systems. Connects to HD Core/Accel Core cards with stan-

dard Digidesign cabling. The LT-HD contains one primary and one expansion Digi-Link port for up to 32 channels of conversion per HD Core card with full channel count at sample rates up to 192 kHz. Control, monitoring and accurate delay compensation within Pro Tools. AES booth #1242.
www.lynxstudio.com

NI NATIVE INSTRUMENTS



NATIVE INSTRUMENTS AUDIO KONTROL 1

The new Audio Kontrol 1 is a high-end audio interface. Offering crystal-clear 192kHz/24-bit quality, it is far more than just a sound card. Freely assignable buttons and controller knob combined with advanced MIDI and key command functionality grant full control of software applications. Features high-quality AD/DA converters, 103dB SNR ratio and four balanced outputs; Traktor DJ Studio Le, Guitar Combos and Xpress Keyboards included.
www.native-instruments.com

RME ADI-8 QS: This fully featured, single-rackspace, 8-channel, AD/DA converter combines excellent analog design with outstanding low-latency performance. Features SteadyClock, analog and digital limiters, four hardware reference levels up to +24 dBu, AES/EBU and ADAT I/O up to 192 kHz, optional MADI I/O, MIDI remote control, remote digital input trimming, remote volume control for all eight analog outs (separately, globally or ganged) and more. AES booth: #1615.
www.synthax.com

SYMETRIX LUCID 88192: This audio converter supports eight channels of A/D and eight channels of D/A conversion at sampling frequencies up to 192 kHz. The multifunction unit offers simultaneous connectivity for analog, high-speed AES/EBU digital audio and SMUX2 ADAT optical digital audio. Option port for future expansion including 1394 (FireWire). Intuitive front panel display for menu-driven setup and active metering. Routing in groups of eight or pairs.
www.symetrixaudio.com

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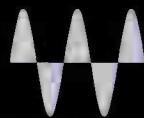
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ADAM AUDIO A7: The A7 combines ADAM's A.R.T. (Accelerated Ribbon Technology) folded-ribbon tweeter with a 6.5-inch carbon-fiber woofer, resulting in an extremely accurate monitor. Powered by two 50W amplifiers, the front panel features a power switch and detented volume knob, while the rear houses controls for tweeter, HF/LF shelving filters, and balanced (XLR) and unbalanced RCA connectors. Price: \$999/pair. AES booth #642.

ADAM AUDIO SUB8: The Sub8 subwoofer is designed to extend the low end of any near-field monitoring system. It houses an 8-inch woofer with a large 50mm voice coil, and is driven by a 160W ICE power amp. The front baffle features two remote-controlled motorized knobs that allow the user to tailor level and crossover frequency without leaving the listening position. The unit also provides an onboard 2.1 bass-management system. AES booth #642. www.adam-audio.com

A-LINE ACOUSTICS EMMA-806A: Ideal for houses of worship, theaters and clubs, the easily portable EMMA-806A speaker modules can be combined, stacked or flown for powerful line array coverage over 250 feet. Each two-way enclosure is loaded with matched 6-inch LF drivers and 6-inch HF ribbon drivers for smooth, accurate frequency response and remarkable fidelity with wide, 100-degree dispersion. Constructed in DuraTex-coated birch plywood with integrated handles, EMMA is available powered with Bang & Olufsen ICEpower™ technology with onboard DSP. www.A-LineAcoustics.com

ATC SCM20SL: The SCM20SL loudspeakers represents ATC's first venture into the pro market with passive, affordable monitoring at \$3,500 a pair. The units feature the same hybrid design incorporating a 150mm bass cone onto which is grafted a 75mm soft dome. The magnet assembly uses ATC's "SL" technology to reduce distortion. The SCM20SLs are packaged in a black wood box instead

of a cast-aluminum housing for easy placement over a meter bridge. AES demo room #270.

Dist. by TransAudio Group
www.transaudiogroup.com/speakers.shtml

BAG END P-S21E-I: The P-S21E-I is the self-powered version of Bag End's compact, high-output S21E-I subwoofer system featuring a 21-inch driver and the Minima One II, the company's proprietary 1,000W high-efficiency power amp module. The unit, housed in a 24.5x24.5x20.5-inch (HxWxD) cabinet, is designed to be driven by Bag End's INFRA Series bass processors. The combination of driver, cabinet and processor design produces flat response down to 8 Hz. AES booth #626. www.bagend.com

BLUE SKY BIG BLUE: A Big Blue system partners three-way, tri-amplified SAT 12 satellites with a 1,000W SUB 15 Universal subwoofer to deliver full-range mid-field monitoring. The 500W SAT 12s use a 12-inch high-excursion hemispherical woofer, an ultralow-distortion 4-inch hemispherical midrange driver and a 1-inch dual-concentric diaphragm tweeter with integral wave guide for superior off-axis response. The SUB 15 Universal is a sealed-box design built around a massive 15-inch forward-firing driver. AES booth #1206. www.abluesky.com

DAS AUDIO VARIANT INSTALL ARRAY: The Variant Installation Array brings the unique advantages of the powered line array to the world's small- to mid-sized venues. The ultra-compact design provides systems designers with a product that offers high output and exceptional sound in an attractive and visually discrete package. The Variant Installation Array is ideal for use as a main system in theaters, houses of worship or corporate events. AES booth #1225. www.dasaudio.com

GENELEC AOW312: The AOW312 three-way active loudspeaker is designed for medium- to large-sized fixed commercial applications. Geared for on-wall mounting, its 12-inch woofer and side porting offers LF extension down to 35 Hz. Genelec's Directivity Control Waveguide™ technology provides extremely stable and accurate imaging and frequency balance. The AOW312, with its matched remote amplifier, produces peak SPL output of 124 dB. AES booth #426. www.geneleca.com

HOSA TECHNOLOGY SESSION 5: Hosa will debut the first in its Session Series of digital near-field reference monitors. The Session 5 has a 5-inch woofer and a 1.5-inch tweeter. Its Binary Drive system provides digital bi-amplification with crossover in the digital domain and USB and RS-232 inputs for remote PC control of volume, and 6-band equalization. Audio inputs are S/PDIF coaxial or optical, and XLR/TRS/RCA analog. Retail: \$799/pair. AES demo room #266. www.hosatech.com



JBL LSR4312SP: JBL LSR4312SP powered 12-inch subwoofer has 450W of power for surround sound production. The LSR4312SP provides five channels of bass management with variable crossover, plus analog and digital LFE inputs. When networked with LSR4326P and LSR4328P studio monitors, the subwoofer's internal RMC™ (Room Mode Correction) system is automatically calibrated to overcome LF anomalies in the room. All settings are remotely controlled from the mix position. AES booth #801.



JBL VT4887ADP: JBL Pro offers compact versions of its VerTec DP Series with JBL DrivePack™ technology. Modular, powered line array systems include onboard digital signal processing developed with Crown. VT4887ADP 2x8-inch full-range line array element and VT4881ADP single 18-inch subwoofer models are featured. These high-performance integrated systems are optionally available as networked models with DPAN (analog) or DPCN (digital) audio input modules, both compatible with HiQnet System Architect Software™ for remote control and monitoring capabilities. AES booth #801. www.jblpro.com



KLEIN + HUMMEL M 52: The M 52 active reference monitor for small studios, broadcast vans and other remote applications is extremely compact with a less than 5x5-inch footprint, housed entirely in aluminum. Flat frequency response, increased SPL output, magnetic shielding and switched AC/DC powering options. The M 52 D version adds a digital input and D/A converter. AES booth # 402.



KLEIN + HUMMEL O 300: Klein + Hummel's aim with the O 300 D was developing the world's finest compact active reference monitor, with accurate, uncolored sound, superb transient response and ideally shaped waveguides. The new O 300 tri-amplified, active, three-way studio reference monitor delivers the stunning quality of the O 300 D without the digital input and control hardware. AES booth # 402.
www.klein-hummel.com

LACOUSTICS SB15P: The SB15P was designed as a companion reference sub for the 108P and 112P self-powered coaxial loudspeakers. Featuring a front-loaded, 15-inch transducer in an optimally sized/tuned vented enclosure, the SB15P combines the convenience of self-powered performance with the flexibility of digital signal processing. Ideal for portable SR, the SB15P provides plug-and-play operation and is equipped with a 1,000W Class-D topology amplifier module and dedicated onboard DSP with instant-recall, application-engineered presets. AES booth #442/demo room 254.
www.lacoustics.com

M&K SOUND MPS-1611P: Designed for state-of-the-art recording/mixing studios, the MPS-1611P is a self-powered bi-amplified precision near-field monitor suitable for a wide range of demanding and critical audio applications, including near-field music composition, recording and mixing, sound design, broadcast monitoring, voice-over booths and quality control.

M&K SOUND MPS-2910: The standard-setting compact sub, with a footprint of less than 1.5 square feet. M&K's exclusive Backfire Push-Pull design radiates the sound out of the back of the cabinet for pressure loading to the room. Features two newly designed 8-inch SuperFast long throw magnetically shielded drivers and 150W continuous Class-A/B and all-discrete analog linear. It comes in a studio black lacquer cabinet. Dimensions: 15x18x10.75 inches (HxWxD). Weight: 46 pounds.
www.mkprofessional.com

MEYER SOUND M'ELODIE: Meyer Sound's M'elodie™ ultra compact, high-power curvilinear array loudspeaker offers an exceptional power-to-size ratio and the signature sound and rigging of Meyer's MILO loudspeakers. A new 3-D acoustical prediction program based on the company's patented MAPP Online Pro™ software will also be previewed. AES booth #310.
www.meyersound.com

NHTPRO M-60 XD: Now shipping, this Integrated DSP-corrected/powerd near/mid-field recording/mastering monitor features a two-way design with 6.5-inch magnesium-cone woofer and a 1-inch aluminum-dome tweeter. The system's

outboard DSP/amplifier unit provides four 150W channels for bi-amplification and system correction/control. Inputs: XLR and RCA analog. Peak output: 112 dB SPL. Frequency response: 55 to 20k Hz, ± 0.5 dB. AES booth #1416.
www.nhtpro.com

OCEAN WAY MONITOR SYSTEMS: Designed by Allen Sides, the new Ocean Way monitor systems are designed and built specifically for the room in which they will be placed. Any acoustic corrections needed to optimize that space are part of installation. We have three versions of our monitors—from stand-alone to soffit-mounted to absolutely no limit. Hear what many industry pros believe are the best large monitoring systems in the world.
www.oceanwayrecording.com

ON TRACK AUDIO MODEL NFR: These ultrahigh-fidelity, near-field studio monitors have a 29 to 27k Hz response (± 1.2 dB), weigh 40 pounds, handle 150W and are priced at \$2,600/pair.

ON TRACK AUDIO MODEL 2: Model 2 is an 8-inch, three-way, ultrahigh-performance studio monitor loudspeaker.
www.ontrackaudio.com

RENKUS-HEINZ ICONYX IC7 SERIES: Renkus-Heinz's IC7 self-powered and ICX7 non-powered Iconyx array systems are based on the Iconyx Digitally Steerable Arrays. The IC7 and ICX7 are passive arrays with mechanically steerable fixed beams. Both feature seven high-performance, 4-inch coaxial

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From world renowned designer Malcolm Toft, come the first consoles to bear his name. Crafted using today's technology on a foundation of classic analogue design, Trident Series™ ATB Consoles are destined to become the cornerstones of project and professional studios alike. Now you too can achieve that "vintage console" sound from your recordings!

Available in 16, 24, & 32 Channel configurations offering up to 88 channels on mixdown!



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transducers in an architecturally transparent enclosure of 44.375x5.687x5.375 inches (HxWxD). These are perfect for venues needing side- and front-fill, or a low-cost short-throw solution. AES booth #720.

www.renkus-heinz.com

SLS LOUDSPEAKERS RLA/4: The RLA/4 was developed for a wide range of applications, from permanent sound reinforcement installs to a pro portable PA system. Its HF section features a high-performance PRD500 planar ribbon transducer, whose unique design and properties allow precise acoustical coupling of the array and full utilization of line source (cylindrical waves) benefits. AES booth #942.

www.sisaudio.com

TANNOY PRECISION IDP: Tannoy's iDP™ (Interactive Digital Programming) technology has now been incorporated within two new Precision monitors—Precision 6IDP and 8IDP. These versatile and intelligent active monitoring systems bring together the unique Tannoy Dual Concentric™ and WideBand™ technology with the latest cutting-edge digital processing from TC Electronic.

www.tannoy.com

TURBOSOUND ASPECT TA-500: The TA-500 is a three-way, full-range (60 to 18k Hz) speaker with patented Polyhom™ design to provide wider dispersion characteristics of 50x25 degrees (HxV). Perfect for regional and theater tours and fixed installs, the unit features a Turbo-loaded 15-inch LF driver, a single 10-inch mid driver on a MF Polyhom and a single HF driver on an HF Polyhom. Similar voicing characteristics make the TA-500 easy to integrate with Aspect models. AES booth #402.

www.turbosound.com

YAMAHA MSP7 STUDIO: Designed for accurate monitoring in project and recording studios, the MSP7 Studio powered monitor speaker features a magnetically shielded, 6.5-inch, ILF cone driver with a dedicated 80W amplifier and a magnetically shielded 1-inch, titanium-dome, high-frequency driver with a dedicated 50W amplifier. AES booths #102 and #926.

www.yamaha.com

YORKVILLE U15P: The U15P uses a combination of amplifier topographies to ensure reliability and superior loudspeaker performance. Two Class-A/B amplifier modules deliver 150W each to the 1.75-inch horn driver and to three 5-inch ceramic drivers that make up the Unity horn assembly. An additional three-tier—designed amplifier module delivers 600W to the 15-inch neodymium woofer. Integrated flypoints allow the U15P to be flown in multi-cabinet arrays or installations without modification.

YORKVILLE UCS1P: This active UCS1P subwoofer includes a 1,500W integrated power amplifier. The horn-loaded design and single 15-inch, long-excursion driver deliver ample low-end support. Features built-in crossover circuitry, 15mm 11-ply birch-plywood cabinet construction, metal grilles and integrated wheels/bar handles. XLR/TRS Combi jack inputs accept all line-level sources. Multiple UCS1Ps can be integrated using the XLR balanced throughput on each power module.

www.yorkville.com

MICROPHONE PREAMPS

A-DESIGNS EM-GOLD: The EM-Gold is designed to bring more mids to the lower end of the sonic spectrum. It combines the output transformer of the EM-Silver (custom all-steel winding) and the input transformer of the EM-Red (custom winding with different ratio I/O). Well-suited for drum recording, various guitar, bass and vocal tracks. AES booths #1427 and #1322.

www.adesignsaudio.com

AEA TRP (THE RIBBON PRE): Now shipping, this high-gain, dual-mono ribbon mic (no phantom) preamp offers 84 dB of quiet gain with mic and instrument inputs. Features +4dBu balanced/-10dBV unbalanced outputs; phase and highpass controls; LED level metering; half-rack chassis; and 9 to 12-volt AC or DC external supply. AES booth #1022.

www.ribbonmics.com



API AUDIO APR A2D: The A2D digital converter features a pair of 312 discrete mic amplifiers combined with proprietary A/D converters in a 19-inch rackspace. Priced at \$1,995, more than 200 units have been delivered since its May 1, 2006, introduction. AES booth #918.

www.apiaudio.com



DW DRUMS/MAY IN EX: The MAY IN/EX blend module is a 2-in/1-out, high-headroom, Class-A mic preamp designed by PreSonus Audio. The module is designed to mix one internal snare mic and any external mic into one channel to achieve the ultimate tone for live performance and recording.

www.dwdrums.com

GROOVE TUBES SUPRE: Stereo microphone and instrument preamplifier that uses a high-resolution tube signal path. Designed for tracking and stereo mastering. Features variable transformer impedance settings on each channel (300/600/1,200 ohms), four high-quality, nickel-core I/O transformers and 72 dB of gain on each channel using four specially selected GT pentode/triode dual-element vacuum tubes. AES booth #1505.

www.groovetubes.com

MANLEY TNT: Here's a twist—two different and discrepant mic pre's in one box for two different colors. One channel is the same mic pre found in our SLAMI, with tubes and transformers. The second preamp is a fresh "no tubes" design inspired by old British console preamps. With the Manley TNT, you'll have two qualified candidates in one chassis. AES booth #1302.

www.manleylabs.com

MATRIX AUDIO SYSTEMS TO-2: The TO-2 two-rackspace, dual-channel preamp has all-discrete (no IC chips!) circuitry with transformer-balanced I/Os. Based on our all-discrete

op amp, it comes with switchable 48V phantom power, pad and polarity inversion. It is not a vintage preamp clone; it has clarity and detail with that "all-discrete, big and punchy" sound. MSRP: \$1,495.

www.matrixaudiosystems.net

MERCURY GRAND PRE: Available in 1- and 2-channel versions, these preamps feature 0 to 60dB input gain control in 12dB steps, a ±8dB fine-gain control, 48VDC phantom, polarity reverse, output control fader and a newly designed FET direct input. I/Os are balanced using the original Sowter transformers. Internal power supply uses a toroidal transformer and is regulated for superlow noise and stable performance. Each amplifier channel is locally regulated to eliminate crosstalk between channels. AES booth #1325.

MERCURY M72s/1: A single-channel version of our M72s, the M72s/1 offers a selectable -16/-28dB input pad, even handling line-level signals for a warm, rich path. Features 48VDC phantom, polarity reverse and direct input for bass/guitar. Our M72s/1 has the rich low/punchy mids of vintage V72 modules, but a more open high end. The preamp has that vintage tone and "breaks up" like the original modules, but is a bit more musical. AES booth #1325.

www.MercuryRecordingEquipment.com

MILLENNIA MEDIA HDOE: The HV-3D output expansion option provides two additional buffered line-driver outputs for the HV-3D microphone preamplifier. It uses the same drive circuit design as the standard outputs. HDOE is capable of driving difficult loads, such as the hundreds of meters of cable typically found in remote situations. The additional outputs terminate on a pair of DB-25 connectors, providing three outputs per mic channel. The HDOE is a factory-installed option. AES booth #628.

MILLENNIA MEDIA HROE: The HV-3R output expansion option provides two additional buffered line-driver outputs for the HV-3R preamp. It uses the same drive circuit design as the standard outputs. This field-installable option is capable of driving difficult loads, such as the hundreds of meters of cable found in remote situations. Additional outputs terminate on a pair of DB-25 connectors, providing three outputs per mic channel. AES booth #628.

MILLENNIA MEDIA HV-3R: The HV-3R 8-channel, remote-controllable preamp employs the same HV-3 circuit found in the HV-3C and HV-3D. Gain control is achieved via ultra-quiet, high-performance 4th-generation relays employing gold-plated contacts rated at 50 million operations. MIDI and Ethernet are its primary remote protocols. The MIDI interface allows plug-and-play compatibility with Pro Tools systems. The Ethernet interface, coupled with Millennia's HV-3DR control software, offers a wide range of features unachievable with proprietary hardware. AES booth #628.

www.mil-media.com



PRESONUS DIGIMAX FS: An 8-channel, Class-A mic pre with optical Lightpipe (ADAT/96k SMUX) I/O and work clock I/O. AES booth #432.

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Eventide's signature 5.1 reverbs and effects require sheer processing power for dense reverbs and complex algorithms — the kind that can crush mortal effects processors. If you're ready to push the boundaries of creativity, meet the new super-heavyweight champion: the 8-channel, 24-bit/96kHz Eventide H8000FW Ultra-Harmonizer® effects processor.

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Despite all that brain and brawn, the H8000FW is remarkably friendly and easy-to-use, optimized for flexibility and control. Virtual racks have been crafted which give you up to five stereo effects processors combined in one preset-algorithm. Search functionality helps you sort presets for easy retrieval.

The H8000FW combines the advantages of the H8000A with the H8000 and adds seamless FireWire connectivity with your computer.

So, crank up an Eventide H8000FW Ultra-Harmonizer and feast your ears on the most amazing effects you've never imagined.

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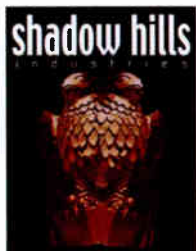


PRESONUS FIRESTUDIO: A 26x26, 24-bit/96k FireWire recording system with eight preamps and ADAT/96k SMUX optical I/O, word clock output, 36x18 matrix routing mixer, optional Monitor Station Remote, and recording and production software. AES booth #432.



PRESONUS FADERPORT: FaderPort is a USB controller designed to enhance creativity and enhance music creation. The FaderPort features a touch-sensitive, motorized fader for writing fades and automation. Additional features include PAN control, record-enable, solo, set and move to marker points, as well as toggle between the Mix, Edit and Transport windows. Compatible with both Mac and Windows systems, FaderPort works with all major DAW software, including Pro Tools, Nuendo, Cubase, Logic and more. AES booth #432. www.presonus.com

RME MICSTASY: The Micstacy features high-end converters and combines a number of RME features with groundbreaking innovations. With Micstacy, not only are conventional analog mic preamps and A/D converters a thing of the past, but a lot of applications will change. In short, Micstacy is the high-end, multi-analog input device for live, studio, installations and mobile recordings, and makes surround recordings a breeze. AES booth: #1615. www.synthax.com



SHADOW HILLS INDUSTRIES GOLDEN AGE MICROPHONE AMP

Made from the finest possible parts, Shadow Hill's GAMA 8-channel mic preamp uses switchable output transformers to shape any channel's characteristics with the flick of the switch. All preamps are based on all-discrete 24-volt op amps, and feature engraved panels, Bakelite knobs and detented switches for the same solid feel of the finest vintage gear. AES booth #1329. www.shadowhillsindustries.com

THERMIONIC EARLYBIRD 2.2: The hand-built Earlybird 2.2 stereo valve mic/line preamp has revised output transformers, selectable mid and bass EQ frequencies. The unit now boasts ultralow distortion, 0.007% @ 1 kHz and 115dB signal-to-noise. Onboard dedicated XLR inputs and front panel input selector for the optional Thermionic Culture Pullet stereo mini passive EQ are also included. AES booth #1134. www.thermioniculture.com

TOFT AUDIO DESIGNS AFC-2: The AFC-2 is a 1-unit, dual-channel EQ with mic preamps ideal for recording, mastering and sound reinforcement. With extremely musical 4-band EQ, the AFC-2 has balanced I/O, 48V phantom power and phase reverse. An attractive, sculpted and brushed-aluminum panel. AES booth #1411. www.toftaudio.com

TONELUX/GENEX 48-CHANNEL MIC PRE. A/D: Tonelux and Genex team up to release the remote-controlled Tonelux/Genex 48-channel mic pre, A/D converter in a 4U rackcase that can fit up to six cards with eight channels each of a combination of the standard mic pre, the Tonelux mic pre, the Genex reference mic pre or a D/A card. AES booth #532. www.tonelux.com

MICROPHONES



SE ELECTRONICS TITAN

SE Electronics' Titan is a transformerless, multipattern, Class-A FET condenser. It uses the company's specially developed center-terminated titanium-diaphragm capsule, providing a frequency characteristic with enhanced clarity, detail and transient response. A better transient response means clear high frequencies with less distortion and a tighter LF response. Titan features a -10dB pad and LF roll-off switch, and is excellent for vocal recording, acoustic instruments, percussion and broadcast use. AES booth: #341. www.seelectronics.com

AKG PERCEPTION 400: Perception 400 is a multipattern, large-diaphragm condenser mic ideal for both studio and live sound applications. Features include two back-to-back capsules with gold-sputtered 1-inch diaphragms, offering selectable cardioid, omni and figure-8 patterns, along with switchable -10dB pad and bass-cut filter. The Perception 400 comes in a metal-framed carrying case with a screw-on, spider-type shockmount. www.akg.com

AUDIO-TECHNICA ARTIST SERIES: Audio-Technica has completely re-engineered its Artist Series™ line of live sound mics, adding innovative new models and upgrading classics for a complete selection of vocal, instrument and drum mics. Highlights include the ATM250DE, an affordable dual-element kick drum mic; the ATM450, an innovative side-address pencil condenser; and the ATM710, a durable cardioid condenser handheld tailored for high-fidelity vocal reproduction. The company also offers a generous selection of included accessories. AES booth #210. www.audio-technica.com

AUDIX VX-5 VOCAL MIC

This professional slim-line, 9 to 52V phantom-powered electret condenser vocal mic is aimed at the live performance and broadcast market. With a uniform frequency response of 40 to 18k Hz, the VX-5 features a 14mm gold-vapor diaphragm, a supercardioid polar pattern, bass roll-off filter, a specially ported steel mesh grille and Audix's trademark black-satin finish. Its -10dB pad enables the capsule to handle SPLs in excess of 140 dB. www.audixusa.com

BLUE MICROPHONES OMNI MOUSE: Using BLUE'S renowned B4 handbuilt spherical pure-pressure omni, Omni Mouse is designed for orchestration, Decca Tree, room tone and ambient recording. AES booth #1501. www.bluemic.com

CHARTEROAK ACOUSTICS M900: The new M900 transformerless small-diaphragm condenser mic uses the company's S-5 (cardioid), S-6 (hypercardioid) and S-7 (omni) capsule types. All three capsules are shipped with each M900 head amplifier and are easily interchangeable. The M900 has a two-step sensitivity switch (-10/-20 dB) and a two-position bass roll-off (-3dB/octave starting at 150 Hz; -6dB/octave starting at 75 Hz). The M900 ships in a flight case with windssock and mic clip, and include CharterOak's lifetime warranty. AES booth #236. www.charteroakacoustics.com

CROWLEY AND TRIPP RECORDIST ENSEMBLE STEREO: Crowley and Tripp's American-made Recordist and Recordist Ensemble Stereo kits are ideal for Blumlein configurations and diverse recording duties. The Recordist is priced at \$1,295 each, and comes with its own rotary mount. The Recordist Ensemble Stereo kit comprises two matched Recordist ribbon microphones, extender bar and low-diffraction rotary mount at an introductory price of \$1,995. Recordist mics have a three-year warranty, and come in an unobtrusive gunmetal grey finish. AES booth: #1431. www.soundwaveresearch.com



DPA SMK4061: The SMK4061 stereo mic kit has been designed for live and recording applications, specifically for acoustic piano. Along with the two hand-selected 4061 mics come a variety of accessories for mounting, including both magnetic and adhesive mounts and a pair of boundary-layer mounts that allow for a range of nearly invisible mounting options. Lid up or closed, these mics will capture the instrument with musical accuracy and detail. AES booth #342. www.dpamicrophones.com



EQUATION AUDIO F.20

The Equation Audio F.20 features all-new, Equation-exclusive, advanced HR-2295, high-resolution head amp, a near 1-inch diameter (22mm) proprietary electret transducer and a new, exclusive multifaceted body and chassis design, performance beta tests have demonstrated it has extraordinary frequency response, robust ballistic capability and exceptionally low self-noise. Comes with large retro swivel-mount. www.equationaudio.com

GROOVE TUBES GT30: Studio condenser microphone. Medium-sized all-brass capsule, top-address design, interchangeable capsules for multiple patterns (optional omni and supercardioid), ¾-inch diameter, 6-micron evaporated-gold diaphragm, Class-A FET electronics, -15dB attenuation pad, 75Hz low-frequency roll-off switch. AES booth #1505.

GROOVE TUBES GT60: Studio condenser tube microphone. Large all-brass capsule, single-pattern side-address design, 1.1-inch diameter, 3-micron evaporated-gold diaphragm, full-frequency Disk Resonator technology, Class-A tube



DPA BLM4060

With its elegant design and excellent performance, the BLM406 is the perfect microphone for speech and vocal sound reinforcement in boardrooms, courtrooms, classrooms and conference facilities. Featuring a built-in 4060 miniature microphone with omnidirectional polar pattern, it picks up speech with a clear, natural sound. The stainless-steel disc is four inches in diameter and is supplied with a detachable 10-foot cable and XLR adapter for phantom powering. AES booth #342.

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electronics, -10dB attenuation pad, 75Hz LF roll-off switch. (Also available as the model GT50, with Class-A FET electronics). AES booth #1505.
www.groovetubes.com



HFB FLASHMIC DRM85: The HFB FlashMic is the world's first pro digital recording microphone. It combines a high-quality Sennheiser omnidirectional condenser capsule with an in-built, broadcast-quality Flash recorder. FlashMic is a convenient, easy-to-operate and durable recorder that's perfect for use in all voice recording applications, including press and broadcast journalism, radio interviewing, Podcasting, meetings, etc.
 Dist. by Sennheiser
www.sennheiserusa.com

HOLOPHONE H4 SUPERMINI: The breakthrough H4 SuperMINI delivers expansive 5.1-channel audio field capture in a supercompact package. The world's only surround microphone mountable on a professional-quality video camera. AES booth #1602.

HOLOPHONE H3-D: The H3-D delivers 5.1 discrete channels of crystal-clear sound—ideal for pro audio, project studios, live music, educational and faith-based surround sound recordings. AES booth #1602.
www.holophone.com



INNERTUBE AUDIO MM-2006: The MM-2006 condenser microphone replaces the MM-2000 in InnerTube Audio's product line. The MM-2006 features a U.S.-made 1-inch sputtered-gold capsule; more extended high- and low-frequency response; nearly line-level output; a noise floor lower than most solid-state condenser mics; a unique tube preamp; and fully remote pattern control from omni through figure-8 to cardioid.
www.innertubeaudio.com



LAUTEN AUDIO HORIZON: The Horizon tube microphone melds acoustic theory with vintage and cutting-edge technology. This microphone is unique in sound, components and industrial design. The Horizon is built with boutique-quality components serving high-end recording studios and home studios. The Horizon is proving to be extremely versatile, making it a true workhorse. AES booth #1107.
www.lautenaudio.com

MOJAVE AUDIO MA-200: Having made custom condenser mics for top recording pros since 1985, David Royer's expertise is available to everyone with the MA-200 large-diaphragm tube mic. The MA-200 uses Jensen transformers, military-grade JAN 5840 tubes and hand-selected, 3-micron, gold-sputtered capsules for exceptional sound quality. It offers extended LF response, smooth mids and an open, airy top end. Includes shockmount, power supply, cable and heavy-duty flight case. AES booth #1332.
www.mojaveaudio.com



NEUMANN KM D SERIES: Neumann's miniature KM D Series enters the digital realm with the KM 183 D, KM 184 D and KM 185 D. Featuring dynamic range far exceeding that of the capsule, internal A/D conversion allows optimal use of capsule qualities, ensuring that the capsule signal reaches the recording system without coloration and with matchless transparency. Two finishes are available: classic nickel and black Nextel. All standard sampling frequencies from 44.1 kHz to 192 kHz are supported. AES booth #402.



NEUMANN KMS 104: The Neumann KMS 104 handheld cardioid condenser stage microphone has been developed to permit optimal vocal transmission with the best possible suppression of sounds originating behind the microphone. The hypercardioid KMS 105 has become an internationally recognized standard in the field of high-quality stage microphones. Due to low self-noise and crosstalk behavior, which is free of coloration, both microphones are ideal for use with in-ear monitoring systems. AES booth #402.



NEUMANN TLM 49: The retro design of the TLM 49 gives an indication of its capabilities. The warm character of the sound provides richness and transparency, with no unpleasant overemphasis of high frequencies. The microphone employs the renowned K 47 capsule as featured in the M 49 and the U47. The TLM 49 is suitable for vocal and instrumental applications in professional production studios and demanding home recordings. It is supplied as a set with elastic suspension. AES booth #402.
www.neumannusa.com

RED MICROPHONES TYPE A: This vacuum tube microphone system combines low noise and superb transient response, along with a choice of nine interchangeable capsules (the RedHeads). The transformerless, Class-A discrete amplifier circuit is a thoroughly modern design with a nod to the classic circuits of yesterday and uses a single hand-selected ECC88 vacuum tube. Included accessories: custom-built flight case, high-definition tube mic cable, shock-mount and innovative PowerStream power supply. AES booth #1509.
www.vintagemicrophone.com

RØDE NT55: The NT55 has the same sound quality, ease of use and reliability of the NT5, but with the added features of a two-stage highpass filter and a two-stage pad. RØDE has also included a free NT45-O omni capsule in every NT55 kit. Along with the supplied NT45-C cardioid capsule, this makes the NT55 an unbeatable package for anyone wanting the most versatile small-capsule system on the market. AES booth #1141.

RØDE PODCASTER: The world's first USB dynamic microphone specifically suited to Podcasting, the Podcaster features an end-address configuration, the clarity of RØDE's tailored-for-voice frequency response, ultralow self-noise, a status LED and a direct output headphone amplifier (with volume control). The Podcaster comes with a 5-meter USB cable and clip. Optional extras include a shock-mounting system and soon-to-be-released adjustable table-mount arm. AES booth #1141.
www.rodemic.com

ROYER R-122V: Finally shipping, Royer's long-awaited first vacuum tube ribbon mic is based on the same ribbon transducer technology as the acclaimed R-121 and R-122. However, the R-122V uses a triode-driven circuit to raise the mic's sensitivity to -29 dB. The mic is finished in 18-carat gold, and features a dedicated power supply and cable with military-grade locking-type XLR connectors, Jensen output transformer and proprietary toroidal mic transformer. AES booth #1332.
www.royerlabs.com



SE ELECTRONICS REFLEXION FILTER: The Reflexion Filter is innovative, portable and versatile—a truly unique device that uses state-of-the-art materials to provide acoustical isolation in any environment and improve the sound of acoustically treated rooms. It attaches to any microphone stand via a clamp fitting, and allows the microphone to be moved vertically and horizontally along the assembly. AES booth: #341.
www.seelectronics.com

SENNHEISER EVOLUTION 602 II: Sennheiser's e602 II cardioid dynamic mic is the successor to the famed e602 and is designed for use with kick drums, bass guitar, cabs, tubas and other low-frequency instruments. More than 40% lighter than its predecessor, the e602 II features more robust, lightweight aluminum housing that allows for greater stability when positioning it on a long boom arm.

A shock-mounted capsule offers fast attack with extended low-frequency response. AES booth #402.
www.sennheiserusa.com

SHURE KSM9: The hard-wired version of the KSM9 wireless, the condenser KSM9 offers switch-selectable cardioid or supercardioid patterns. Response is 50 to 20k Hz; max SPL is 153 dB. Available in champagne or charcoal-gray finishes, it features a two-stage internal shock-mount, hardened-steel grille and gold-plated connectors. AES booth #302.
www.shure.com

STUDIO PROJECTS B SERIES: All B Series Mics have been significantly upgraded. Housed in matte-silver bodies with a sleek new look, each mic has a stylish tri-color emblem. Features have been added in many cases, allowing for greater flexibility of configuration. A new headstock with a wider, heavier mesh grille, combined with improvements to the capsules and electronics, result in improved sonic characteristics. All B Series mics include elastic suspension and foam windscreens. AES booth #1411.

STUDIO PROJECTS C SERIES: All C Series mics have undergone a significant upgrade. Updates include a sleek new look and a redesigned headstock. Changes to the capsule design and electronics allow for lower self-noise, greater dynamic range and improved sonic characteristics. In many cases, features have been added, such as additional pad and highpass filter settings, resulting in a greater number of possible configurations. All C Series mics include the new

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PROFESSIONAL 5.1 MONITORING HEADPHONE SYSTEM

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Halo elastic suspension, foam windscreen and flight case. AES booth #1411.
www.studioprojects.com

SUPERLUX S241/U3: The new Superlux S241/U3 is a true capacitor cardioid condenser microphone with a ½-inch gold-evaporated 3-micron diaphragm. It features a 0/-10/-20dB position attenuation switch and a flat, 75Hz and 150Hz position low-cut filter switch. The S214/U3 has an extended frequency response, superior signal-to-noise ratio and excellent SPL characteristics. The slight high-end elevation frequency response makes it ideal for capturing signals rich in transients in a wide variety of applications. www.avlex.com

MIXING CONSOLES

ALLEN & HEATH GL2800M: The critically acclaimed GL Series has expanded with the addition of the GL2800M, a dedicated monitor console offering 16 mixes for wedges and in-ears. The GL2800M can mix up to eight stereo IEMs or any combination of wedges and in-ears with mono/stereo assignment per mix. PFL Logic includes PFL override AFL, stereo AFL and PFL-to-wedge capabilities. Other features include four mute groups and built-in mic splitter with ground-lift switching. AES booth #318.

ALLEN & HEATH XONE:3D: Allen & Heath introduces the XONE:3D, a revolutionary performance DJ controller that seamlessly integrates computer-based software and digital media into the traditional DJ workspace. The XONE:3D combines a fully featured, professional analog DJ mixer based on the XONE:92 with a comprehensive MIDI control system and a high-end multichannel USB soundcard. www.AmericanMusicAndSound.com

ALTO GHIBLI16FX: Alto's new Ghibli mixer sets a new precedent in small-format mixer design. Its 11x8x1-inch chassis offers 16 channels of mixing capability. Four microphone inputs offer three bands of parametric EQ with a mid sweep, a selectable preset compressor/de-esser and 100Hz rumble filter. Sixteen preset 24-bit DSP which includes variable reverb, round out the feature set. The GHIBLI16FX has a retail of \$189 and is available from The Yorkville Group. www.altopa.com

AMS NEVE DFC PS/1 POWERSTATION: The DFC PS/1 PowerStation features unbeatable Neve sound, sample rates up to superhigh-definition 384kHz, Star Command simultaneous control of multiple workstations, high-resolution TFT metering, 384 fader paths, reconfirm from picture change lists and insertion of premixes into larger mixes. PS/1 is a complete system with integrated surround monitoring and machine control. The DFC Gemini and PS/1 are the power behind world cinema. AES booth #438. www.ams-neve.com

APB-DYNASONICS MIXSWITCH: MixSwitch provides the ability to easily switch between primary digital or analog and a backup console, or between headliner and opening act consoles in concert/presentation situations (In Switch mode or Sum mode). In club applications, it allows selecting between front-of-house and DJ mixers into common audio systems. MixSwitch will be available in the 4th quarter of 2006. AES booth #1442. www.apb-dynasonics.com



ARGOSY MIRAGE FOR SSL AWS 900+: Argosy's Mirage furniture housing will transform your SSL AWS 900+. Phil Wagner, president of Solid State Logic, says, "I like what the Argosy Mirage does for the AWS 900+; it really looks great. The Mirage gives you ideal ergonomics. It has all the right features—perfect for integrating additional SSL signal processing equipment at arms length." Designed for the AWS 900+, the Argosy Mirage furniture solution creates a powerful presence in the heart of your control room. Price: \$4,995. www.ArgosyConsole.com

CADAC S-DIGITAL: Reflecting Cadac's 20-plus-year history, the S-Digital features a surface architecture derived from the Cadac J-Type analog console. With key audio and control parameters accessible in under a button press, the Cadac S-Digital combines instant usability and familiarity with other Cadac hallmarks: superb sound, build quality, reliability and unrivaled return on investment. The S-Digital enters production in October, in a 72/64 base configuration. www.cadac-sound.com



DAN DUGAN SOUND DESIGN MODEL E: The Model E is a half-rack, 1U-high Dugan automatic mic mixer with minimal controls. Speech system performance matches the D Series. Additional controls are available via an embedded Web server. I/O is connected by TRS Insert cables or ADAT optical cables. Can be linked for up to 64 inputs (analog I/O only), and it can link with Models D-2 and D-3. Power is 9 to 24 VDC, or 9 to 18 VAC. AES booth #1119. www.dandugan.com

DANGEROUS MUSIC D-BOX: Featuring eight channels of Dangerous Music analog summing technology, D-Box is also equipped with a programmable monitor control section with two speaker outputs, two digital inputs with onboard D/A conversion for digital sources, talkback, two headphone outputs and an aux analog input. D-Box's programmability allows simultaneous monitoring of multiple input sources and level offsets. AES booth #1335. www.dangerousmusic.com

DIGICO V. 4 SOFTWARE: To evaluate the much-awaited V. 4 software update for our digital consoles, come by our stand. booth #1202. www.digico.org

DIGIDESIGN VENUE UPGRADES: New are Digital Stage Input (DSI) and Digital Stage Output (DSO) card options for VENUE. A single DSI provides eight channels of digital

input for the VENUE Stage Rack, either through four AES/EBU pairs or a single ADAT interface. One DSO card offers eight AES/EBU output channels and ADAT Lightpipe, with both active at all times for simplified simultaneous "splits" to recording/monitoring/broadcast feeds. AES booth #826. www.digidesign.com

EUPHONIX SYSTEM 5-MC: The System 5-MC is a DAW controller based on the Euphonix System 5 control surface design. System 5-MC tightly integrates via Ethernet with any EuCon application such as Nuendo, Logic Pro and Pyramix, as well as HUI and Mackie Control protocol applications such as Pro Tools. The control surface can be fitted with eight to 48 channel strips and includes the MC Media Application Controller for master console functions and integral control of the DAWs. AES booth #902. www.euphonix.com

FAIRLIGHT CC-1: Fairlight introduces 21st-century multimedia technology. This groundbreaking invention redefines the price/performance ratio of multimedia platforms and raises the bar in terms of performance quality and creative operation. Delivering more channels, more buses and faster processing with lower latency, this new technology makes all other established processing paradigms obsolete. AES booth #326. www.fairlightau.com

LAWO MC290: Designed to take the technology of Lawo's mc266 mixer to a new level, the mc290 digital console has a redesigned graphical layout and user interface. It integrates Lawo's Star2 topology, providing total console redundancy in no-fail environments. The mc290 modular design can be adapted for various applications. AES booth #636. www.lawo.de

LOGITEK ARTISAN: The Artisan, a modular control surface for Logitek's audio engine router, is designed for advanced radio production, small performance group mixing or TV applications. Multiple master and submaster buses, onboard dynamics processing/EQ, 5.1-compatible operation and flexible monitor controls. AES booth #1217. www.logitekaudio.com

MIDAS XL8: This open-architecture, cross-platform, audio control/distribution system for handling all audio aspects of a live show features a 72-fader/96kHz system with the reliability of distributed pathways, redundant routers, dual stage boxes and multiple DSP engines for fail-safe operation. MidasNET protocol provides low, ideal-for-IEM latency. Expandable I/O stage boxes each include 24 remoteable mic preamps with three analog mic splits linked to 96 channel inputs (plus 16 mic/line aux ins). www.midasconsoles.com

RUPERT NEVE DESIGNS 5088: Designed by Mr. Rupert Neve from the ground up, incorporating his custom input and output transformers, and all-discrete circuitry, the new 5088 modular console is a powerful, expandable production desk with the sweet musical performance of Neve's classic consoles. The 5088 features 16 channels of dual line inputs with custom transformer I/O (expandable in 16-channel increments), eight auxes, eight buses, 100mm faders, four effects returns, extensive monitoring capabilities and a thorough master section. AES booth #1306. www.rupertneve.com

SOLID STATE LOGIC DUALITY: SSL's new Duality console is a large-format analog music mixing console for those who love analog but work with digital. Designed to closely integrate with your workstation, Duality offers split signal path, Variable Harmonic Drive mic amp, E and G equalizers, peak or over-easy compression, VCA-style or moving fader automation, and multiple stereo or 5.1-channel panning—all with the SuperAnalogue K Series sound. AES booth #610. www.solid-state-logic.com

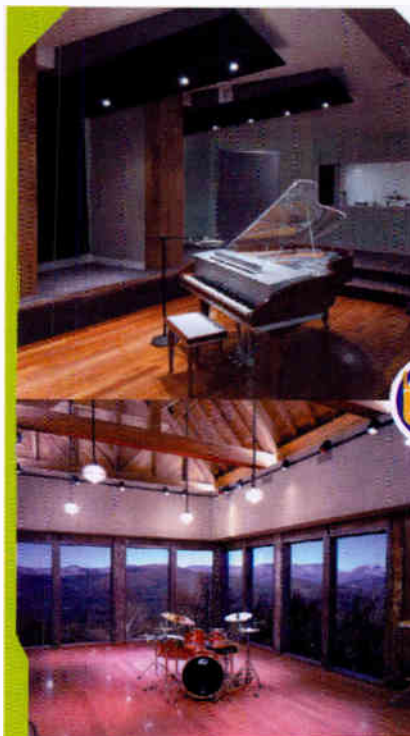
SOUNDCRAFT V16: Soundcraft's V16 digital live sound console uses a derivation of Studer's Vistonics interface (rotaries and switches mounted within the touchscreen surface) to enable engineers to quickly and intuitively operate the desk. Other V16 amenities include 64 available channels from within a compact 32-channel frame, motorized faders, 32 outputs (plus a stereo and mono mix) and 16 matrix outputs, 4-band fully parametric EQ and integral dynamics on all channels, Soundcraft FaderGlow and Harman HIQnet compatibility. AES booth #801/demo room 250. www.soundcraft.com

STUDER VISTA 5: Vista 5 is a highly flexible digital mixer with a well-conceived control surface designed for broadcast production, live sound and performance venues. Among the desk's many standout features are the award-winning Vistonics user interface, numerous output formats, Studer's Virtual Surround Panning (VSP), robust redundancy capabilities, extensive static automation (snapshot filtering and editing) and cue list functionality—rounded off by mute groups and matrix buses—and Harman HIQnet compatibility. AES booth #801/demo room 250. www.studer.ch

TASCAM DM-4800: This is the ultimate digital console for pro users who demand a flexible mix platform that configures to fit their needs. This 64-channel mixer features 24 buses, 12 aux sends per channel and 24 studio-grade mic preamps, providing enough inputs for a live event; more can be added using expansion cards with external pre-amps. A completely configurable routing system lets users repatch the board at the flick of a switch. AES booth #202.

TOFT AUDIO DESIGNS SERIES ATB: The Series ATB console represents a quantum leap in small-footprint console design. Available in 16, 24 and 32-channel configurations, the ATB features high-quality mic pre's, Heritage EQ, six aux sends, direct outputs, eight stereo effects returns and inline monitoring for up to 88 channels available during mixdown. An optional digital I/O card enables the board to be interfaced directly with DAWs and other digital equipment. AES booth #1411. www.toftaudio.com

TONELUX TR8, TR8+ BUS ASSIGN MODULES: Tonelux introduces the TR8 and TR8+ 8-channel bus assign modules to its extensive line of modular recording solutions. The TR8 and TR8+ can be used for buses, additional inputs, sends, IFB or mix-minus systems. Balanced +4dB In. Uses any of the Tonelux summing modules, TR8+, FX2+, SM2 or SM1 as a summing master. AES booth #532. www.tonelux.com



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TRIDENT DREAM 32: The perfect analog solution for your DAW is the Trident Dream 32 console. The original Trident sound, modular construction with a Sonicomp compressor in the master section and Trident sonic excellence from John Oram. AES booth #1118.

www.oram.co.uk

YAMAHA DM2000VCM: This console's Virtual Circuitry Modeling (VCM) technology can simulate analog circuitry, emulating the sounds of sought-after vintage gear—compressors, EQs and even tape machines. Onboard ISSP (Interactive Spatial Sound Processing) provides surround post effects and room acoustics that model reflection decay based on source directivity and room surface materials. Matrix sound processing converts source position data to parameters that control the output of each matrix channel and simulate distance-related decay through delay and filter processing. AES booth #102.

www.yamahaca.com

ZAXCOM DEVA MIX-12: Deva Mix-12 is a fully digital, 12-fader control surface that directly manages the audio mixer embedded within the Zaxcom Deva IV and V location recorders. Combined with either the Deva IV or V, Deva Mix-12 performs all location mix and record functions, reducing production costs by eliminating the need for expensive external mixing consoles. AES booth: #1425.

www.zaxcom.com

MUSIC PRODUCTS

DAVE SMITH INSTRUMENTS EVOLVER: The Evolver keyboard is a classic mono synth featuring a knob-per-function interface. This stereo instrument has two analog oscillators and two digital oscillators that use the wave tables from the Sequential Prophet VS. The synth also uses Curtis 2/4-pole analog lowpass filters, real analog VCAs and a host of other features, including a powerful 4x16 analog-style sequencer. The keyboard can be chained to other Evolvers for polyphonic operation.

www.davesmithinstruments.com

DISCRETE DRUMS RUFF DRUMZ BITCH: Smokin' collection of hip hop and R&B drum performances on eight discrete tracks. This is the real deal performed by the drummers that are making the hits.

www.discretedrums.com

DRUMS ON DEMAND VOL. 8, MORE 4/4: This tasty collection of 28 straight-time Song Sets™—available in stereo and multitrack editions—is guaranteed to inspire the hit songwriter in you. Features a variety of crossover styles and sounds for rock, pop and country. Simply find the Master Loop™ and use the other loops and segments in the Song Set to quickly build a "session player" drum track.

www.drumsondemand.com

DW DRUMS ACOUSTIC EQUALIZER SNARE: Ideal for recording, this 6x14-inch DW Collector's Series snare features

Acoustic Equalizer technology, an advanced venting system that lets drummers control the amount of air leaving the drum via a series of precision-cut gates, creating a drastic change in tone that's amplified when close-miked. Open it up for a dry crack or close it off for a thick bottom end.

www.dwdrums.com

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The Chronicles of Hip Hop. Reflecting today's charts, this series is innovative, fun, creative and, at times, irreverent. The Chronicles of Hip Hop features new artists, credible and real. The initial four discs will be available this fall.

www.firstcom.com

HOLLYWOOD EDGE THE PREMIERE EDITION 6: The legacy continues with the sixth installment of the Premiere Edition Library. Containing 1,100 of the most sought-after and requested effects. Categories include antique and modern civilian and military airplanes and helicopters and maritime effects; water movement; exotic frog and cricket ambiances; rural and urban ambiances; public events backgrounds; children and adult vocals; household; clocks; and fire, ice and weapons. Ten audio CDs and two bonus DVDs is \$695.

HOLLYWOOD EDGE THE PREMIERE EDITION 7: Premiere Edition 7 is an excellent tool to sweeten and enhance any of your radio, TV, film or game projects. The latest in the Hollywood Edge Flagship Collection contains more than 1,150 effects. Categories include sedans, sports cars, SUVs and trucks; traffic and city backgrounds; construction; footsteps; water; wind; animals; doors; buttons; Foley; and medical effects. Ten audio CDs and two bonus DVDs is \$695.

www.hollywoodedge.com

IK MULTIMEDIA STEALTHPLUG: With an in-line guitar cable USB audio interface housing a ¼-inch jack on one side and a USB port on the other, entering the world of software-based amp and effects modeling is as simple as plugging your guitar into a computer. StealthPlug also includes volume-adjustment buttons, indication LED and ½-inch stereo output for headphones, powered speakers or an amp. Includes AmpliTube 2 Live.

www.ikmultimedia.com

MSOFT MUSICCUE, VISIONCLIP SERVERS: VisionClip will archive your image libraries or your own video. Proxy files and production-quality digitized video with searchable thumbnail images are created on upload. MusicCue will get rid of your walls of music and sound effects CDs, and get current releases of all production music libraries totaling more than 25,000 CDs. Systems come with music cross-referenced by category, era, style, etc., and make music cue sheets from an EDL file.

www.mssoftinc.com

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Massive is a sonic monster for maximum sonic impact. The high-end engine delivers pure quality, lending an undeniable virtue and character to even the most saturated of sounds. The interface is clearly laid out and easy to use. From violently rugged and deep bass rumblings to silky smooth, gliding and gently fluctuating pads, from brutal to delicate, Massive generates distinctive, intense and vivid sounds from the start.

www.native-instruments.com

NOVATION XIOSYNTH: Novation's newest synth is an integrated synthesizer, audio interface and MIDI controller. Features include a mono-timbral Novation synth engine with 8-voice polyphony, three oscillators, a filter, two LFOs, an arpeggiator and a multi-effects board. The XioSynth also boasts the new X-Gator patch programmer and 200 jaw-dropping presets, including 60 from renowned artists and producers. AES booth #318.

www.AmericanMusicAndSound.com

SOUND IDEAS PODCASTING PRODUCTION TOOLKIT: Live up your Podcast productions with 1,000 MP3 files of production elements, royalty-free music and SFX on a CD-ROM. AES booth #215.

www.sound-ideas.com

SYNTHOLOGY ITALIAN GRAND: Expansion pack for Ivory that adds a fourth stunning piano to Synthogy's award-winning collection. With 12 velocity layers and 16 GB of sample data, the Italian Grand continues Ivory's legacy as the world's premier virtual piano. Supports RTAS, VST and Audio Units hosts, and stand-alone.

www.synthogy.com

TRF PRODUCTION MUSIC CDS: TRF added 20 new CDs to its Kool Kat (now containing 90 contemporary, cutting-edge CDs) and Adrenalin libraries. Releases include *Rock*, *Electronica 4*, *Europe*, *Kool Beds 3*, *Olympics*, *Big Band*, *Grand Piano*, *Big Screen Action*, *1980s Style*, *Latin Lounge Chillout*, *Smooth Beds*, *Quirky/Fun*, *Ambient and Acoustic Guitar*. TRF also released two new Bravo, two Cobra, three Dennis and 12 Stock CDs, including *Cartoons*, *Buddha Bar*, *Nostalgie*, *Trance*, *Jazz*, *Phunk+Jazz=Cool*, *Light Grooves* and *Ambient Drama*.

www.trfmusic.com

VIENNA SYMPHONIC LIBRARY SYMPHONIC CUBE: Ten Vienna Instruments, making up the Symphonic Cube, are Vienna's answer to the desires of composers and orchestrators for ease of use, authenticity and inspiration. The Virtual Instruments incorporate intelligent performance algorithms into a powerful audio engine. Articulations can be combined on a single MIDI track. Vienna's proprietary Performance Detection analyzes intervals, repeated notes, patterns and speed in real time and automatically summons the appropriate articulation.

www.vsl.co.at

POWER AMPLIFIERS



LIPINSKI SOUND L-3601 POWERED STANDS

Tests indicate that many amplifiers built into the back of a speaker produce up to 15% second- and third-harmonic distortion. Lipinski's solution is to build its new 600W L-301 monoblock amplifier directly into the stand rather than the speaker, enabling short speaker cable length while allowing easier amplifier setup, especially in a surround environment. Price: \$2,595.

AVLEX PA-200: The new Avlex PA-200 Class-G power amplifier delivers 130W @ 8 ohms and 200W @ 4 ohms in a single-space rackmount configuration. The Avlex PA-200 features detent level controls, DC and thermal overload protection, short circuit and speaker protection, dual cooling fans, noise-free soft-start power up, XLR and 1/4-inch inputs, Speakon outputs, and LED indicators for power, signal, clip and protect mode. www.avlex.com

DAS AUDIO CSA-300T, CSA-600T: The CSA Series amplifiers are D.A.S.' latest offer in stereo amplifiers with 70- and 100-volt outputs for distributed audio systems. Housed in a rugged steel chassis, CSA Series amps offer a rugged, cost-effective solution for any permanently installed sound system. Features front-located gain controls, XLR and screw terminal connectors. Covered barrier strip output connectors provide safe and reliable connections. AES booth #1225. www.dasaudio.com

LAB.GRUPPEN FP+ SERIES: With four amplifiers in the new FP+ Series, Lab.gruppen again sets the industry benchmark for touring power amplification. The flagship FP 13000 provides two channels of 6,500W @ 2 ohms; FP 10000Q delivers four channels of 2,500W @ 2 ohms; FP 7000 offers 2x 3,500W @ 2 ohms; and the FP 6000Q supplies 4x 1,500W @ 2 ohms. All models are 2U, weigh 26.5 pounds and include Lab.gruppen's six-year warranty. AES booth #820. www.labgruppen.com

LECTROSONICS DMPA12: This 12-channel digital power amp/DSP processor in a single rackspace has audio inputs taken from the final mix bus via the Digital Audio Network Interface (DANI) bus. These final mix signals are processed individually at each output channel in the amp to apply delay, filtering, compression and limiting. In Bridged mode, two channels can be combined to double the output power. The DMPA12 can be controlled and programmed via USB interface or an RS-232 serial port. AES booth #729. www.lectrosonics.com

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www.sony.com/professional

DOREMI LABS NUGGETPRO: NuggetPro is a stand-alone SD and HD video player for audio post. The NuggetPro provides perfect sync with the audio workstation timeline via its frame-accurate Sony 9-pin Chase mode. The NuggetPro's stand-alone design is fully compatible with a majority of DAWs. NuggetPro features variable-speed playback and the ability to scrub in perfect sync within the DAW session. AES booth #1401.
www.doremilabs.com

GLYPH FIREWIRE800 GT SERIES: Glyph Technologies provides digital audio delivery systems and storage sub-systems for audio and video production environments. The new FireWire800 GT Series storage products incorporate sound-absorbing metal to reduce noise and Glyph's Integrity™ FireWire hot-swap interface. All are covered by a three-year warranty and carry an additional Overnight Advance Replacement policy in the first year. AES booth #1028.
www.glyphtech.com

HARRISON X-DUBBER: Harrison's new X-Dubber digital audio recorder provides 64-plus tracks of "tape-style" recording and playback, with a user interface and file-interchange system designed for the needs of audio-for-video users. The X-Dubber is the first in a series built on Linux O/S and enterprise-class open-source software. The X-Dubber is available stand-alone or integrated into a high-definition workflow system with any of Harrison's film and video post-production consoles. AES booth #941.
www.harrisonconsoles.com



MERGING TECHNOLOGIES VCUBE SE: VCube SE is a hard disk-based video record/player design for audio post-production in film and TV. Compatible with standard-definition (SD) and compressed high-definition (HD) video formats, VCube SE has been developed as a cost-effective configuration of Merging's mainstream VCube HD-2K system and can be used as a master or slave device with any manufacturer's DAW, VT machine or edit controller via RS-422, MMC and LTC. The system can be configured as a player-only, a player/recorder or as a multi-streaming centrally served networked configuration. AES booth #1233.
www.merging.com



PRIMERA TECHNOLOGY BRAVO SE: The Bravo SE disc publisher is an affordable, automated CD/DVD duplication and printing system for both Mac and PC users. Bravo SE copies and prints up to 20 discs per job, hands-free. Bravo SE comes equipped with a DVD±R/CD-R combination drive that records DVDs at 16x and CDs at 40x. A 4,800 dpi printer prints full-color, photo-quality images directly onto the disc's surface. MSRP: \$1,495. AES booth #1347.
www.primera.com

QUANTEGY NEW BLACK DIAMOND PRODUCTS: Quantegy debuts two new products in its Black Diamond line of digital recording and hard drives at AES. Come see how Quantegy matches the quality of tape and the innovation of digital recording to create drive products that will revolutionize the way you record. For more than 50 years, from analog tape to digital hard drives, Quantegy continues to lead the media industry in quality and innovation. AES booth: #1410.
www.quantegy.com

SOUND DEVICES 2 FOR 7 SERIES RECORDERS: Version 2 operating firmware for its 7 Series recorders adds several new features. Available as a no-charge download for all 7 Series recorders, V. 2 adds direct recording to FireWire-connected hard drives or optical drives including DVD-RAM; FireWire bus powering of external drives; external keyboard control of all front panel controls (when using the CL-1); and remote transport control via switch closures (when using the CL-1). AES booth #1520.
www.sounddevices.com

STUDIO NETWORK SOLUTIONS GLOBALSAN X-4: GlobalSAN X-4 is a compact SAN for multiroom production studios using Pro Tools, Final Cut Pro or Avid. The X-4 is now shipping with 500GB, 7,200 rpm 3Gb/s SATA drives (2TB). It contains a single RAID controller and two client licenses of SAN software. Workstations can connect directly to the X-4 over Gigabit Ethernet and share RAID-protected storage as they would to a more expensive Fibre Channel SAN. AES booth #447.
www.studionetworksolutions.com

TASCAM DV-RA1000HD: Stereo audio master recorder provides a pro solution to capture high-resolution audio to DVD or hard disk at up to 192k/24-bit PCM formats, and remains the most economical solution for recording Direct Stream Digital audio. It has a 60GB hard drive so that projects can be recorded, then burned to CD or DVD, making it the quintessential digital recorder for live, studio, mastering or installed apps. AES booth #202.
www.tascam.com

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www.rogemicholsdigital.com

ANTARES AUDIO TECHNOLOGIES AUTO-TUNE 5: The next generation of the worldwide standard in professional pitch correction, Auto-Tune 5 provides a sleek new interface, improved pitch detection, a Humanize function for more natural results, a much larger pitch edit display, sync-to-host transport in Graphical mode (host-dependent), multiple simultaneous Graphical mode instances (host-dependent) and real-time natural vibrato adjustment. Also new are numerous editing enhancements to streamline and simplify the process of pitch correction.
www.antarestech.com

BSS HIQNET LONDON ARCHITECT V. 1.12: HiQnet™ London Architect™ V. 1.12 introduces support for remote access of Soundweb™ London systems over Virtual Private Network (VPN). This gives engineers secure configuration, control and monitoring of installed systems from remote locations, without requiring to install costly PCs on site. Support for the new Soundweb London digital input cards and digital output cards, offering the option of AES/EBU and S/PDIF capability to existing hardware, is also included. AES booth #801.
www.bssaudio.com



CUBE-TEC AUDIOCUBE FOR PRO TOOLS MAC OS X: Cube-Tec has announced the availability of AudioCube restoration plug-ins for the Pro Tools Mac OS X platform. Pro Tools users now have access to the highly specialized restoration tools that have become "go-to solutions" for many of the world's

most prestigious restoration and mastering facilities. The first of three product releases will include DeBuzz, Spectral DeHiss, DeScratcher and DeCrackler.
www.cube-tec.com

ELIOSOUND



ELIOSOUND AIREQ

AirEQ[®] is a new and exciting musical equalizer that accurately reproduces analog equalization characteristics, such as the curve precision and phase variation, thanks to AMLT[®] filtering technology, which is exclusive to ElioSound. The company also reproduces musical tuning methods, which are an important part of the sound of a high-end equalizer. AirEQ also features a special Air band, which is a new type of filter that helps you restore or add brightness to the sound.

www.eliosound.com

Eventide[®]

EVENTIDE ANTHOLOGY II: For Pro Tools TDM, Eventide's Anthology II puts all 15 Eventide plug-ins into a single, powerful effects bundle, including H3000 Band Delays[™], H3000 Factory[™], H910, H949, Omnipressor[™], Instant Phaser[™] and Instant Flanger[™], Eventide Reverb, Octavox[™], Quadravox[™], EQ45 Parametric Equalizer, EQ65 Filter Set, Precision Time Align[™], E Channel[™] and Ultra-Channel[™] channel strips.

www.eventide.com

MCDSP ML4000: The ML4000 is a high-resolution limiter plug-in designed for music, mastering, post and live sound, and comes in single and multiband configurations. ML4000 offers a multiple-stage brickwall limiter with continuous knee control. The multiband configuration has a 4-band gate, expander (upward or downward) and compressor fed into the same limiter algorithm found in the single band. ML4000 is available for Pro Tools HD and LE systems for \$495. AES booth #1518.

www.mcdsp.com

MINNETONKA AUDIO BATCH.PROCESSOR: Batch.Processor converts, encodes, edits and applies plug-ins and external processors to sets of audio files in Batch mode. Users specify Input files, configure a chain of one or more processors, set parameters for each processor and run the job. Files are automatically processed and placed in the specified output location. Batch.Processor is client/server with true multimachine/multiprocessor support. Batch.Processor also supports external gear for access to both vintage analog processors and external digital processors.

AES booth #1540.

www.minnetonkaaudio.com

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NEYRINCK

NEYRINCK SOUNDCODE FOR DTS: Tightly integrated with Pro Tools software, the SoundCode for DTS plug-in provides mastering-quality workflow tools that enable encoding and decoding of DTS Digital Surround, 96/24 and ES audio directly within Pro Tools. SoundCode for DTS, combined with Digidesign's Neyrinck SoundCode for Dolby, enables surround encoding for any DVD delivery requirement. SoundCode for DTS is a must-have for post-production professionals delivering high-quality audio for DVD-Video and DVD-Audio. www.neyrinck.com



PSP MASTERCOMP: PSP MasterComp is a high-fidelity, single-band stereo mastering compressor plug-in with a distinctive sound and extra linking features (VST, DirectX, RTAS for PC; Audio Units, VST, RTAS for Mac OS X). Its double-precision (64-bit floating point) and double-sampled (FAT, Frequency Authentication Technique) processing offers transparency even at extreme compression settings and high sample rates. It includes a wide range of controls that make it an exceptionally versatile tool for mastering compression and expansion, as well as bus processing during mixing. Price: \$249. AES booth #1230. www.pspaudioware.com

ROGER NICHOLS DIGITAL FINIS: Finis controls your audio levels and prevents distortion from rearing its ugly head. And when you need to give your audio more edge, Finis helps you maximize your audio's loudness. Even at extreme settings, Finis can control levels without audible distortion. Whether you just need to catch an occasional over or to increase the average level of your audio, Finis offers a flexible solution. RTAS, Audio Units and VST for Mac and Windows. Price: \$249. AES booth #1635.



ROGER NICHOLS DIGITAL FREQUAL-IZER: Build a complex FIR (Finite Impulse Response) filter to your specifications. See the results of your EQ with the built-in spectrum analyzer. Frequal-izer will not color your audio with the introduction of nonlinear phase shift. Ever wanted to make one track sound more like another? Need to bring together takes recorded in different spaces? Frequal-izer's spec-

trum-matching feature provides you with all this and more. Use Frequal-izer's 50 states to store EQs for instant recall or automation. AES booth #1635.

ROGER NICHOLS DIGITAL INSPECTOR XL: InspectorXL was designed to address the most common analysis tasks with professionalism, style and finesse. Available as a series of modules, InspectorXL includes six thoughtfully designed plug-ins for FFT, Spectrogram and third-octave spectral analysis, custom and standard-level metering, phase and correlation, balance, stereo image and statistical clipping, and over-analysis. InspectorXL provides a comprehensive, flexible and easy-to-use approach to audio analysis. Available in RTAS, Audio Units and VST for Mac and Windows. Price: \$299. AES booth #1635.



ROGER NICHOLS DIGITAL UNIQUEL-IZER: UniqueL-izer lets you determine your ideal EQ. Need more bands or filters? They're just a click away. No need for another EQ or use of another insert slot. From standard to specialty filters, the unprecedented selection lets you be the master of your EQ. Use harmonic parametrics to remove A/C line noise or use the steep notch to remove unwanted tones. With 11 filter types available, there's a filter for every occasion. AES booth #1635. www.rogemicholsdigital.com

UNIVERSAL AUDIO UAD-1E EXPERT PAK: The UAD-1e Expert PAK combines world-class audio plug-ins with potent DSP power. UAD-1e is compatible with the high-speed PCI Express (PCIe) bus used in the latest Apple desktop Macs and PC motherboards. The Expert PAK comes with a \$750 voucher for the Powered Plug-Ins of your choice. The company's fast-growing plug-in library brings vintage equalizers and compressors, superior precision mastering tools, lush reverbs, guitar effects and officially licensed classic hardware emulations from Roland and Neve. AES booth #334.

UNIVERSAL AUDIO UAD-1E EXPRESS PAK: The UAD-1e Express PAK combines potent DSP power with world-class audio plug-ins. The Express PAK includes a \$100 voucher for the Powered Plug-Ins of your choice. UAD-1e is compatible with the high-speed PCI Express (PCIe) bus used in the latest Apple desktop Macs and PC motherboards. AES booth #334. www.uaudio.com

WAVES MERCURY: A massive amalgamation of 71 Waves plug-ins, including the debut of the V Series, three vintage models not available anywhere else. These British models—the V2254 compressor, the V1081 EQ and the V1073/66 EQ—represent the cutting edge of acoustic modeling. Mercury also features GTR, IR-1 and IR-360 convolution reverb; Waves Tune; DeBreath; the renowned L Series Ultramaximizers and new 24-band L324; and the entire Waves 360° Surround Tools and Diamond bundles. AES booth #936. www.waves.com

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FOCUSRITE LIQUID MIX

Focusrite's newest product, Liquid Mix, is an integrated control surface/plug-in system that provides DSP powerful enough to drive 32 tracks of vintage EQs and compressors simultaneously without taxing the host computer's CPU. Liquid Mix uses dynamic convolution technology to provide emulations of the most revered signal processors used on hits throughout recording history. Liquid Mix is VST/Audio Units/RTAS-compliant (with included FXpansion wrapper), and works within all major DAWs. AES booth #318. www.focusrite.com

ALTO DIGAN SERIES: DIGAN equalizers are available in 2x7-band, 2x14-band and 2x30-band configurations. All models may be set as a parametric EQ with variable Q ratings. Time alignment and crossover control are available on the 2x30 version, while other models feature a selectable compressor. Preset parameters can be adjusted and saved with an intuitive PC editor (included). All models are available from The Yorkville Group with retail pricing of \$149, \$189 and \$269, respectively. www.altopa.com

API AUDIO API 5500: For recording, mixing and mastering applications, the single-rackspace API 5500 is a 2-channel, all-discrete EQ package. It combines classic features with the reset functionality of the 550D and 550M mastering EQs. Four independent bands of EQ on each channel covers 30 to 20k Hz, and operates with a range control, switching between three choices of boost and cut and switchable LP and HP filters on each channel. AES booth #918. www.apiaudio.com

ARCHITECTURAL ACOUSTICS PROLINX: Prolinx is a fully programmable DSP audio processing, routing and control system. Supports I/O matrix configurations from 12x12 to 96x36. Features 32-bit parallel SHARC processors; USB, Ethernet and RS-485; room combining; true auto-mixing; wired or wireless networking; and graphic EQ at each output. www.aa.peavey.com

CEDAR AUDIO CAMBRIDGE Q: Cambridge Q is a powerful, new incarnation of the CEDAR Cambridge system, with four CPUs boasting more than double the processing power of previous versions and many software advances in its Cambridge V.3 software. With an improved Process Manager and expanded file processing and automation capabilities, it also offers significant upgrades to many of the processing mod-

ules, and is a big step forward, whether used in mastering, post or audio forensic investigation. AES booth #1236. www.cedaraudio.com



CHANDLER TONE CONTROL: Chandler's Tone Control EQ uses active and passive EQ circuits with the Germanium amplifier developed for the Germanium Preamp, and also incorporates the versatile feedback and drive controls. The passive LF section is selectable between "Pultec/Lang" interactive curve and more standard low frequency with pass filter for maximum flexibility. The treble and presence bands are active and designed to sound like your favorite British EQs from yesteryear. AES booth #532. www.chandlerlimited.com

CREST NX COBRANET-8: Nx CobraNet-8 is a control module designed to add networking and processing functionality to Crest's C1™ 20x8 and 20x4 multichannel power amplifiers. Supports all NexSys* and MediaMatrix functions, DSP functions and CobraNet digital audio I/O on a single Cat-5. Extensive suite of DSP options, including loudspeaker management, delay, EQ, compression/limiting and crossover. www.crestaudio.com

DOLBY DP600: The DP600 is the world's first intelligent file-based audio loudness analysis and correction system.

Compatible with many of the most common broadcast media file formats in use today, the DP600 expands upon the award-winning Dolby LM100 Broadcast Loudness Meter with Dialog Intelligence™. Terrestrial, cable and satellite broadcasters now have the ability to automatically normalize the loudness of all of their file-based programming and commercials without impacting the original dynamic range. AES booth #602. www.dolby.com

DOLBY LAKE PROCESSOR: This processor provides advanced control and flexibility of complex speaker systems for live events, fixed installations and studio settings. The unit is easy to integrate into any audio system, and the software interface is intuitive, enabling sound engineers to save time in setup and handling. With four front panel Portals and the wireless tablet, engineers have easy access to monitor the system and make adjustments in real time. AES booth #602. www.dolby.com/livesound

DRAWMER S3: The Drawmer S3 stereo 3-band optical compressor incorporates the very latest in Ivor Drawmer's designs. The aim from the beginning was to create a "no technical compromise" circuit using only the highest-grade components. The S3 forms the basis of the Signature Series, and offers previously unattainable control and tonality over each of the three bands; gain control at each stage offers precise spectral balancing. It's truly a mastering level tube compressor. AES booth #1315. www.drawmer.com

EAW UX8800: This rackmount digital processor brings EAW's Guinness Focusing technology to a broad range of existing EAW loudspeaker systems. Guinness Focusing is a unique DSP technology that corrects the sonic problems inherent in conventional compression driver phase plugs, horns and LF driver technology. As a result, Guinness Focusing allows horn loaded loudspeakers to deliver sonic performance comparable to premium direct-radiating studio monitors, but at the much higher output levels required in SR apps. AES booth #518. www.eaw.com

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Elysia offers advanced audio production tools with a focus on high-end mastering equipment. Based on longtime experience in developing analog audio circuits, the company's

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all-discrete Class-A gear makes a sonic statement in the world of modern signal processing. The Alpha compressor is a sophisticated dynamics tool with unique features such as an integrated M/S matrix, onboard parallel compression, sidechain and audio filters, and additional soft-clip limiters. Made in Germany. AES booth #532.
www.elysia.com



EMI TG12345 CURVE BENDER: The EMI TG12345 Curve Bender is the ultimate TG EQ issued in celebration of the 75th birthday of Abbey Road Studios. The newest Curve Bender, conceived by Chandler Limited designer Wade Goeke and Abbey Road senior engineer Peter Cobbin, has been transformed from the simple EQs of the rich past of EMI and Abbey Road into a modern powerhouse suitable for recording, mixing and mastering. AES booth #532.



EMI TG12413 ZENER LIMITER: The ultimate TG limiter issued in celebration of the 75th birthday of Abbey Road Studios. The Zener Limiter, conceived by designer Wade Goeke, is based on the vintage EMI circuits. This limiter continues the tradition of EMI limiters started in 1954, and borrows from the 1968 RS168 Zener Limiter and the 1969 TG12345 console strip to make a flexible unit for modern-day use. AES booth #532.
www.chandlerlimited.com

Eventide®

EVENTIDE ULTRA-HARMONIZERS: Eventide is showcasing the H7600 Ultra-Harmonizer and the flagship H8000FW 8-channel 24-bit/96kHz processor with FireWire. Also on display are the Eclipse, the DSP4000B+ post processor and Reverb 2016 dedicated reverberator. AES booth #1008.
www.eventide.com

JOEMEER MC2: The mc2 is a stereo compressor that features optical compressor with threshold, ratio, attack, release, makeup gain and gain-reduction hold. A stereo-width processor rounds out this new offering. AES booth #1411.
www.joemeek.com

LANGEVIN MINI MASSIVE: A solid-state, stereo, 2-band EQ featuring enhanced versions of the highest and lowest bands of the famous Manley Massive Passive Stereo EQ. Hutch's new "Rapture Amps" perform the makeup-gain duty. Price: \$2,800. AES booth #1302.
www.manleylabs.com

MEDIAMATRIX NION NX: A programmable digital audio processing node built on the industry's most efficient audio algorithms, with three floating-point Analog Devices' SHARC

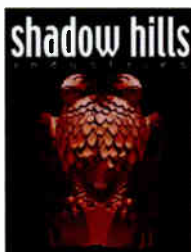
DSPs, dual-module bays, integrated CobraNet port, 48 or 80 simultaneous configurable audio channels, NWare™ Windows-based software interface, Ethernet, configurable GPIO, and RS-232 and RS-422/485 ports.
www.mm.peavey.com

MERCURY EQP1: The EQP1 adds extra frequencies for more flexibility and uses a new, quiet, stable power supply and DC on the tube heaters. In the original EQP this inter-stage transformer was always in the signal path. The company adds a transformer I/O switch, providing a choice of two sounds. Booth #1325.
www.MercuryRecordingEquipment.com

MUSE RESEARCH RECEPTOR: Dedicated hardware plug-in player designed for using virtual instrument or effects processing with minimal latency and maximum performance. Receptor runs popular plug-ins with amazing results. New: a model for recording pros featuring UniWire technology that lets users run plug-ins inside a remote Receptor as if they were operating inside your host computer. AES booth #244.
www.museresearch.com

RUPERT NEVE DESIGNS PORTICO 5014: This revolutionary new module from the design bench of Mr. Rupert Neve expands the boundaries and limitations of traditional 2-channel recording and playback. For mix and mastering engineers, the 5014 stereo field editor allows for control of stereo ambience with width adjustment, position of images forward or backward in the stereo field with depth control, and the ability to further accentuate material panned left or right with its difference channel EQ and insert. AES booth #1306.
www.rupertneve.com

SABINE NAVIGATOR EN SERIES: Sabine's new Navigators are multi-I/O digital system processors with full loudspeaker management, matrix mixing and signal routing capabilities. Remote control from anywhere via Ethernet, and up to 16 units can be controlled simultaneously. Unlimited DSP power, built-in FBX Feedback Exterminator, front panel or software control, and a great price make the Navigators an easy choice. 3x6, 4x8 and 8x8 configurations available.
www.sabineusa.com



SHADOW HILLS MASTERING COMPRESSOR

Provides mastering-grade compression and limiting for

tracking and mixing. It is two compressors in series, per channel, that can act in either stereo or dual-mono. Each section can be individually hardware-bypassed. First comes our mastering-grade electro-optical compressor, followed by discrete Class-A compressor/limiter. Both have switchable sidechain filtering. The output stage features switchable custom output transformers. AES booth #1329.
www.shadowhillsindustries.com

SSL X-LOGIC RANGE: SSL introduces additions to its X-Logic DAW partner product range. With the introduction of two new modules, a flexible high-quality line-input mixer based on X-Rack can be configured. The new Master Bus and 4-channel input modules enable configurable, multi-input, dual-stereo bus, mini-SSL mixers with Total Recall. The new X-Logic Alpha Channel is a 1U channel strip. AES booth #610.
www.solid-state-logic.com

SPL PASSEQ: The SPL Passeq EQ features 72 passive filters (36 boost, 36 cut per channel). Each channel is divided into three cut and three boost bands, each offering 12 switchable frequencies. The Passeq incorporates a unique inductive filter design using a dedicated coil/condenser/resistor combination. This design ensures the widest possible palette of sonic colors a passive EQ could offer. The Passeq also provides high-cut, low-cut, and low-boost and shelving filters. AES booth #1125.
www.spl-usa.com

SUMMIT AUDIO FEQ-50: Summit Audio has launched its FeQ-50 passive 4-band parametric EQ. Using a fully passive LC circuit, the FeQ-50 has tube and solid-state outputs (available simultaneously), +4dB and -10dB I/O, six frequencies per band, ±12 dB of gain and internal power supply in a half-rack chassis. Designed as a sound-sculpting device, the FeQ-50 shapes, colors and warms your signal without phase anomalies inherent in active EQ designs. AES booth #1107.
www.summitaudio.com

XTA ELECTRONICS DP 4 SERIES: The DP424 (2x4), DP444 (4x4), DP446 (4x6) and 4x8 DP448 feature 28-band graphic EQ, eight filters and built-in delay. Outputs have polarity switching, high/lowpass filtering, delay, up to nine filters and I/Os, and phase-adjust in 2-degree steps. The crossover offers Bessel/Butterworth/Linkwitz-Reilly filters and up to 48dB/octave roll-off. RMS and Clip/D-max limiters have look-ahead clip limiter attack time. Internal sample rates are up to 96 kHz, with external 192kHz support. AES booth #1206.
www.xta.co.uk

WIRELESS SYSTEMS

BEYERDYNAMIC OPUS 900: The UHF system offers a range of interchangeable capsules. The DM 960 S and B capsules are fitted with the high-performing TG-X 60 dynamic hypercardioid capsule, while the DM 969 S is fitted with the Opus 69 dynamic supercardioid capsule. The EM 981 S has an electret condenser capsule and the CM 930 B features Beyerdynamic's ultrafull-range true condenser capsule. AES booth #1102.
www.beyerdynamic.com

ELECTRO-VOICE REV: Electro-Voice's REV wireless system offers an array of new features from its predecessor, the RE-1. REV's optimized analog audio path was developed with Digital Audio Labs to provide the truest representation of a wired microphone sound possible in a wireless system. REV-Link™ PC software allows remote monitoring, control and programming over a CAN bus connection through an E-V UCC-1 converter or Netmax N8000. www.electrovoice.com

SENNHEISER SK 5212: Lightweight and smaller than the 5012, the SK 5212 transmitter can interface with Sennheiser's NET 1 Network System multichannel wireless hub. Operates with all of Sennheiser's 3000 and 5000 Series components. Switching bandwidth of 36 MHz is freely selectable in the UHF range from 450 to 960 MHz. Can be set in 5kHz steps. A single AA battery powers six hours at its full 50mW output power. AES booth #402. www.sennheiserusa.com

OTHER PRODUCTS

AUDIO PRECISION APX585: The APx585 multichannel audio analyzer is the first to offer eight simultaneous channels of analog I/O. Designed for multichannel consumer audio, the APx585 features integrated reports, single-project settings file and a new measurement navigator to automate test sequences. Take 14 key measurements on eight channels in 14 seconds with one mouse click. AES booth #526. www.audioprecision.com

BEYERDYNAMIC HEADZONE: Headzone provides superior headphone-based 5.1 surround reproduction. It offers a unique, patented ultrasonic head-tracking system, which locates the orientation of the listener's head with respect to the source material and adjusts the audio accordingly. Based on the setup commonly seen in a mixing studio, an engineer recording with Headzone can move around while the source material remains fixed in position. AES booth #1102. www.beyerdynamic.com



EQUATION AUDIO RP-15MC

With mid-size—but full circumaural—ear cushions, the RP-15MCs have impressed the beta-testing users that

we nicknamed them "Baby Pros." With a proprietary 38mm driver and exceptional acoustic design, the headphones deliver professional level response and detail, along with remarkable overall clarity and comfort. Priced aggressively with a very competitive MSRP (TBA), Equation proudly adds the RP-15MCs to its growing line of professional EarTools, stereo headphones and accessories. www.equationaudio.com

OMNIRAX ARIA: Designed both as a beautiful home for your keyboard and mini-computer studio, and to look great in your living room, the Aria features room under the riser for rack gear and hidden cable management. Part of Omnirax's new Quantum Series, Aria's light, stylish and ergonomic design combines curved user-friendly worksurfaces with metal legs and riser posts, curved modesty panels and the introduction of our new 3-D laminated finish. MSRP: \$1,350 to \$2,575.

OMNIRAX AVEON: Aveon is a sleek and expansive desk that features a single-CPU cabinet, a fully articulating computer keyboard platform, raised monitor bridge, concealed cable management and locking casters. Its light, stylish and ergonomic design combines curved user-friendly worksurfaces with metal legs and riser posts, curved modesty panels and the introduction of our new 3-D laminated finish. MSRP: \$1,890 to \$3,600. www.omnirax.com

STUDIO TECHNOLOGIES SPLNET SYSTEM: The SPLnet System allows audio engineers, technicians and managers to accurately measure and monitor sound levels in real time. A clear, user-friendly, Web-based interface permits monitoring of single or multiple locations, one unit or dozens. Features automatic alerting using e-mail or SMS text messaging. Optional application software allows data to be stored on a PC or server. AES booth #1406. www.studio-tech.com



ULTRASON EDITION 9: The newest model in Ultrason's award-winning headphone line, Edition 9 is a closed-back design, with 40mm titanium-plated mylar drivers for an 8 to 35k Hz bandwidth, Ethiopian leather sheepskin earpads, a metal flight case, 10-year warranty and Ultrason's signature S-Logic technology for natural, accurate reproduction available. Ultrason headphones reduce SPLs to the eardrum up to 40 percent, reducing fatigue and protecting hearing, while shielding up to 98% of the emission of electromagnetic frequencies. AES Booth #1303. www.ultrasonusa.com



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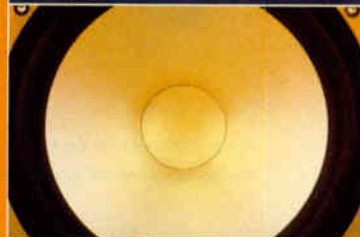


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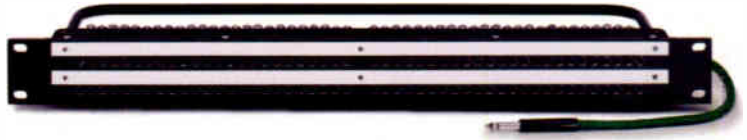
Installation Basics

Considerations for Studio Wiring

In any installation, the fundamentals are the same: Wiring may be the most obvious factor, but it's just one consideration. First and foremost, when you're wiring a studio, create a list of things to do, as well as a labor and materials estimate. Also, realize that if your budget's tight right now, you can postpone part of a project, making provisions for later expansion.

Don't ignore professional advice, whether free or for hire—weigh it carefully. No matter how much of the future has been provided for in your plan, conventional wisdom still applies: Don't change horses midstream. Develop a relationship with your designer(s) early enough to know you've got a good fit. Too many cooks spoil the broth. There are many ways to implement ground in an audio system, but only one concept at a time, please. And, of course, there's Murphy's Law. So be prepared with backup or alternative gear and plans.

Last, but not least, don't forget the fudge factor: Nothing ever costs exactly what you think it will. The actual multiplier is determined by the thoroughness of the first estimate. However, with Net access, you've got



This TT patchbay packs 96 jacks into a single rackspace, yet this model terminates in raw contacts, ready for 288 solder connections on the rear side for installation.

oversized to allow for the quiet delivery of necessary control room and studio cooling.

SURPRISE!

Strange as it may seem, audio consoles and support equipment are impulse buys for some and after-the-fact whims for others. The proud purchaser will hand over the prize to those who must do the dirty work. Even worse are the surprises on the first install day, when wiring troughs or conduit are undersized or nonexistent, and the console has been swapped out for one that was "a better deal." If you can't do it, then pay someone to oversee every step of the design process.

THE OCTOPUS' GARDEN

For some studios, the patchbay that came with the console is the center of the universe. Conscientious installers will integrate changes—gear additions and subtractions, or facility expansion—according to the manufacturer's layout scheme. It's often difficult to match the density that production manufacturing can achieve; practice does lead toward perfection.

However, when a patchbay is designed as an independent entity, it becomes a challenge to lay a foundation for future expansion. Translation: You only have to hardwire one patchbay (or have it done) to know that modular is *the* way to go.

After the initial investment of building or buying a modular patchbay, everything down the line is so much easier. This eliminates the Medusa aspect of patchbay fabrication; the job of snake-charming multiple, lengthy snakes can be done off-site. Modular bays allow both the customer and the installer to make changes, upgrades and mistakes without the traumatic behind-the-bay surgery.

You can buy pre-made modular patchbays with your multipin connector of choice—Elco/EDAC, DB-25 and DL are the most common. Most multipin connectors come in crimped and soldered versions. Crimped connections are easier and just as reliable as soldered if they're done correctly. Originally intended for computer applications, DB-25 (D-Sub) connectors were first popularized for audio use by

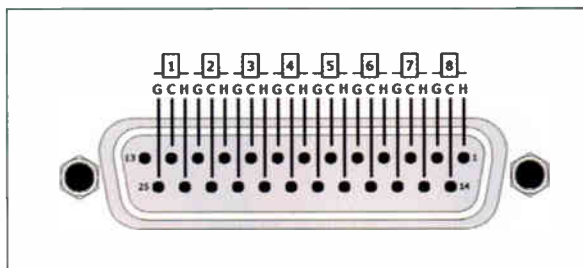
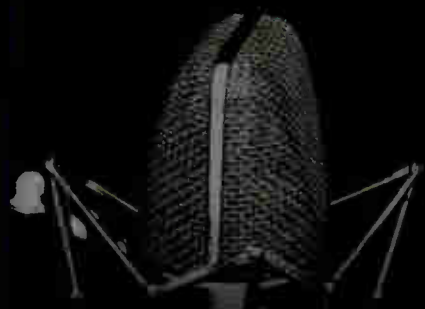


Figure 1: Pin-out for the 8-channel, 25-pin D-Sub audio connector in the Tascam standard. Three pins are used for balanced lines.

no excuses not to do research. Take your punch list to the Web and run with it. But let's start with the non-wiring details.

Speaking of Mr. Murphy, there are three "gotcha" issues—power and cable distribution is one, followed by priorities like HVAC (Heating/Venting/Air Conditioning) and cable conduit size. Power and audio wiring paths should intersect rather than run parallel—or be very far apart for the shortest possible distance if they must take a similar path. HVAC must be able to deliver cooling, both to the obvious creature zones and to equipment closets. Often overlooked, exhaust is as important as the ability to deliver cooling. Any ductwork should be



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Tascam and are now used by dozens of manufacturers. Figure 1 shows the pin-out of this "Tascam standard," where three pins are used for balanced line (hot, common and ground) connections for each of the eight channels. Pin 13 is unused.

D.I.Y. MULTIPIN

Let's assume you've purchased a modular patchbay and are planning to do the rest of the wiring yourself. If crimping, the one caveat is that you must choose the correct wire gauge (diameter) to ensure a snug physical connection and long-term reliability. (Consult the dealer for the recommended gauge before ordering the cable.) You'll be investing in an Elco/EDAC crimp tool (about \$200 street) and crimp pins (\$0.20 each). A 90-pin male or female connector and metal hood housing set is priced around \$35. Speaking of the connector hood, don't forget to slide the housing onto the cable before you start soldering or crimping. There is nothing worse than completing multipin snake connections and then realizing that the cover is still sitting on the workbench.

Patchbay and Grounding Options

There are several ways to implement a ground distribution in an audio system. Some patchbays, like the Audio Accessories model pictured, have options that could first be used for interrogation (chasing a ground-related hum or buzz) and then be "locked in" for final implementation.



The WDBP-9615-SH (\$890)

is a 2x48x1.5RU prewired patchbay to DB-25 connectors. This unit has switches on the rear to configure the normals and grounds on a per-jack basis. Its ground options include:

Grounds Not Bused: All jacks are isolated and each independent ground is brought out to rear termination.

Grounds Bused: All jacks are bused together, making a common ground. This common ground is then routed to a binding post at the rear of the panel.

Grounds Vertically Strapped: The grounds of each vertical jack-pair are connected. Horizontally, the grounds of these vertical jack-pairings are still isolated. This lets the user maintain a solid ground path from source to destination for each vertical pair of jacks.

Grounded to Specific Application: If you need one row bused and the other not, or have another method you need implemented, the unit can be customized to meet specific requirements.



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PATCHBAY PREFERENCES

I have no patchbay connector preference—traditional telephone-style ¼-inch or Tiny Telephone (TT) Bantam—except that the latter allows more density, and for many customers, space does seem to be at a premium. What makes these professional bays last for so long is contact pressure. The jack and its normals are self-cleaned with each insertion. It's the plugs that get funky, but more on that in a moment.

Patchbays to avoid are the type most often found on low-cost consoles. These dreaded circuit board-mounted jacks are more plastic than metal—they simply don't hold up because of insufficient contact material and the lack of self-cleaning pressure. I recommend wholesale replacement/upgrade.

In between the dreaded and the traditional are the D.I.Y. bays with standard ¼-inch (or RCA) connectors on front and back. At first, these seem cost-effective, but they can cost about as much per jack as a nonwired pro bay. If you use them in hostile/humid environments, then periodically clean both the patch plugs and the rear plugs. Be sure to strain-relief the rear-entry cables to ensure that the plugs are not accidentally pulled out of the jacks if activity occurs behind the rack.

ROUTINE MAINTENANCE

I really want to encourage patchbay awareness so that drastic maintenance is not necessary. My own bays have been in service for about 15 years and are still going strong.

For traditional patchbay preventive maintenance, I recommend polishing the patch cords and wiping off polish residue with a cloth soaked in denatured or 99-percent alcohol. (A cloth with a "taste" of contact preservative can also be used, but sparingly; be sure to use a separate cloth to remove the excess.) Brass plugs are better at showing you they need attention; the nickel-plated plugs may need less attention, but they can hide the nonconductive films that build up from handling and environmental "corrosion."

Please *do not* spray patchbays with contact cleaner—a burnishing tool is much more effective at polishing all the contact points except the normals. Don't leave patch cords in the bay for long periods of time because exposure to "the elements" can degrade the normals. Exercising the bay—by plugging and unplugging patch cords—can bring normal connections back to life. When that doesn't work,

remove the individual jacks to burnish the contacts from the side.

DIGITAL PATCHBAYS


Digital audio gear is more likely to be electronically patched (like analog video) rather than via mechanical patchbay. Digital routers come in all flavors and sizes, and there are more devices with digital I/O from the conventional "outboard" to microphones and keyboards.

One of my sound design clients solved his minimal patching needs with a Digidesign 192 with two digital I/O cards. His assortment of digital outboard gear

includes a Quantec Yardstick, Lexicon PCM91, Eventide Eclipse, TC Electronic Reverb 4000, Focusrite ISA 428 mic pre, and converters by Lucid and Lavry. All devices are hooked up via AES. Inputs are switched within the Pro Tools hardware setup dialog (set 1 through 8 is for recording, set 9 through 16 is for mixing).

HOT, HOT, HOT

Heat is the enemy of electronic devices—analogue and digital alike—and when developing your studio wiring scheme, consider the need to accommodate the placement of gear that can be remotely




"My K+H 0300Ds have been my primary monitors for the past three years. They allow me to accurately hear the inner details of my mix, which is especially vital when I'm working on densely-layered film scores. When something is wrong in the mix, I hear it. When the mix is right, the sound from the K+H monitors is big and impressive."

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operated (such as CPUs) in more distant locations. Hardware routers, servers and workstations all get hot. Gigahertz CPUs, whirring hard drives and the fans to keep everything cool typically operate without filters. Heat affects processing ability, so a machine room is a good location for gear that's noisy and in need of cool, clean, filtered air. I often reverse fans, add filters and more fans to gear that can easily be modified.

Because laptops are often part of the equation, pay attention to models with obvious air intake and exhaust. Especially when either is on the underside, the worksurface must be on a hard, non-cushy surface. Traditional desktop models should also be situated in well-ventilated areas. If somewhat out-of-sight, then check the intake and exhaust grilles for fur balls and make a point to vacuum regularly. (Don't forget to change the filters—vacuum or otherwise—to ensure optimum performance and airflow.)

Tube gear, particularly the modern retro variety, tries to compete with the iPod generation by packing more processing into smaller spaces. Think of the generous amount of real estate designed into the packaging of an LA-2 limiter, Fairchild compressor, Pultec EQ or RCA preamp modules. In those days, the tubes were mounted outside on the rear of the unit. Modern iterations squeeze a pair of channels into a 2U package, with tubes on the inside.

If you love your retro gear and want it to last more than a one-night stand, then be considerate and leave air space between each unit—especially if you happen to notice that the top and bottom panels have screens or have ventilation holes. These tips are borne from the service bench—I see what happens when gear is stuffed into racks without regard for temperature. Think more like a geek—you're not packing a truck—and if empty rackspaces are not part of your aesthetic, then buy 1U rack screens.

CHICKEN OR EGG?

Recording system installation requires a skill set that can only be acquired with experience, especially in terms of what can go wrong. Don't get overwhelmed: Post-install problems help us do a better job. Good luck! ■

Eddie Ciletti would like to thank the electron goddess for inspiration and guidance and Tom Hambleton of www.undertonemusic.com for the digital outboard list.

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World Radio History

Solid State Logic Duality

Analog Console/Workstation Controller

Traditionally associated with high-end consoles, Solid State Logic (www.solid-state-logic.com; AES Booth #610) began offering more affordable products about two years ago with the highly successful AWS900 console/controllers, followed by its XLogic outboard gear and Duende DSP engine. Now, with its new Duality line, SSL is addressing the market for analog consoles priced in the middle ground.

"The 'Duality' name comes from the many choices this console offers in terms of EQ, dynamics and topology," says SSL's director of commercial applications, Chris Jenkins. "Whether in terms of the console's control or signal processing aspects, users have a choice of flavors."

Offered in 48, 72 and 96-fader versions with integral DAW control, Duality may simply seem like an expanded AWS900, but this new mixer takes the console/controller concept to the next level. "The layout is similar to the AWS, but each channel strip features a full, 6-band, switchable SSL E/G equalizer," Jenkins explains. "It has dynamics on every channel. The compressor follows the 9000 version, but in keeping with its Duality name, offers either an over-easy true RMS sidechain for transparent compression or a peak-sensing, hard-knee sidechain and linear release curve for a more exaggerated effect. It's like having two completely different compressor sections in each channel strip. The gate/expander has a variable release with a fixed hold, which can be switched to a variable hold with a fixed release. You get the best of both worlds without cluttering the front panel with too many knobs."

According to Jenkins, one of Duality's major innovations is the Split-Channel Path, which enables the channel processing to be placed in the input or monitor path of your DAW. "We're not really limited by track count in terms of the recording medium anymore, and when tracking, most people put every signal on its own track," says Jenkins. "We came up with the concept of inserting the workstation into the channel strip. Users can choose whether the feed to the workstation—essentially the channel output—is either pre- or post-processing. And we have the split mode, which inserts

the workstation's return into the channel strip, so you can monitor off the workstation either with the processed signal going to, or on the return of, the workstation."

On the DAW control side, Duality is similar to the AWS900, but offers full 32-fader control of Pro Tools and up to 96 faders of control for programs such as Steinberg Nuendo and Apple Logic that support the Mackie Control protocol. A digitally controlled gain element in each channel can switch the motorized faders to control any workstation while retaining the analog signal path. Channel rotary encoders provide direct control of DAW pans, sends, input and output routing.

Duality's multiple 12-inch TFT displays show high-res metering, status, routing and more. "It can display an Eyeconix picture of what's being recorded—either the person playing on the track or a picture of the instrument," says Jenkins. "This is common on applications as simple as GarageBand, but has not been used on consoles yet. We also incorporated some of the graphics from our C100 and C300 digital mixers. You can look at the meter bridge and see exactly how your channels are configured, what processing is active, what the processing order is, where the workstation send points are and where the workstation signals are returned to."

The console doesn't have a keyboard for naming and instead uses a Web browser interface. "Logging in to the console's IP address from a Web browser, you can upload icons and do labeling from the same PC as your workstation or another one," Jenkins adds. "Then you can easily archive automation data or recall setups on the same media as the workstation data."

Duality is equally at home doing stereo or surround. "This is the first analog 5.1 console that offers a fully variable, center focus control," he continues. "This center-channel divergence control is continuously variable from hard center to phantom center and everything in between, so users can fine-tune exactly how the center image is generated. There's a dedicated LFE send, so you have



six buses for the main mix buses. There are also 24 track buses, so you could create five discrete 5.1 stems from the board."

As far as sound goes, Duality provides the clarity of SSL's SuperAnalogue™ straight-wire sonic performance, but with a choice of multiple sonic signatures, such as Variable Harmonic Drive™ (VHD). Incorporated in each channel strip, VHD was developed by SSL's chief analog designer, Dave Mate, who created a circuit that has a tube-type overload characteristic. "You can vary the harmonic content from odd to very musical, even harmonics," says Jenkins. "Also, a post-preamp gain trim lets users cascade gain sections to drastically alter the incoming signal, almost like a guitar amp. You can add valve warmth or you can make it sound extremely gritty, if that's what you want."

Jenkins notes that one challenge was keeping Duality's physical size under control in spite of all the additional features. "We've managed to keep the center section fairly compact—12 faders wide—and the console's front-to-back depth is small enough that I can reach the back of a module without getting out of my seat. It's a nice form factor that looks impressive without being a battleship."

Duality pricing begins at less than \$200,000 for a 48-frame version, making it a viable alternative to an older E, G or J Series console. Other than the number of channels (48, 72 or 96), options are few, but include 12-degree wings for the extra channels and a choice of patchbays. Duality is now shipping. The first board went to a Japanese studio last month and other pre-launch orders are in production. ■

AURORA INTERFACE OPTIONS

AES16

PCI card offers direct connectivity via PC or Mac to all 16 digital I/O channels with remote control. Includes Aurora software mixer for added routing and 64 channels of metering.

LT-ADAT

Expansion card provides up to 16 channels of ADAT Lightpipe I/O at 48 kHz. Higher sample rates supported using S/MUX. Permits format conversion between ADAT, AES/EBU and analog I/O.

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LT-FW

Expansion card available Fall 2006. LT-FW provides a 16 channel cross platform FireWire® interface.

LYNXTWO-AURORA INTERFACE

Cabling kit gives LynxTWO and Lynx L22 owners direct connectivity for up to 16 channels of Aurora I/O.

1824 AURORA TRIM OPTION

Aurora 16/1824 and Aurora 8/1824 models feature +18 dBu and +24 dBu full scale trim settings, which replace the +6 dBV and +20 dBu full scale trim settings of standard models.

Aurora Converters from Lynx. Okay, let's review...

"Aurora offers superb converter quality and small footprint for such a powerful piece of gear. Imaging was so pin-point sharp that I could almost reach out and touch each instrument, and I have never been able to listen so far into reverb tails before. To my ears, Aurora offers something special, and can compete on audio quality with converters from other companies, but often at a significantly lower price per channel."

Sound on Sound, June 2006

"Aurora has amazing high and low frequency definition and a notable sonic depth. After using the Lynx Aurora for several weeks, I can say that it is one of the finest sounding A/D and D/A boxes in existence today. It is the perfect solution for stereo or multichannel music production or mastering or simply as the front end for digital audio work stations, digital mixers, or modular recording devices."

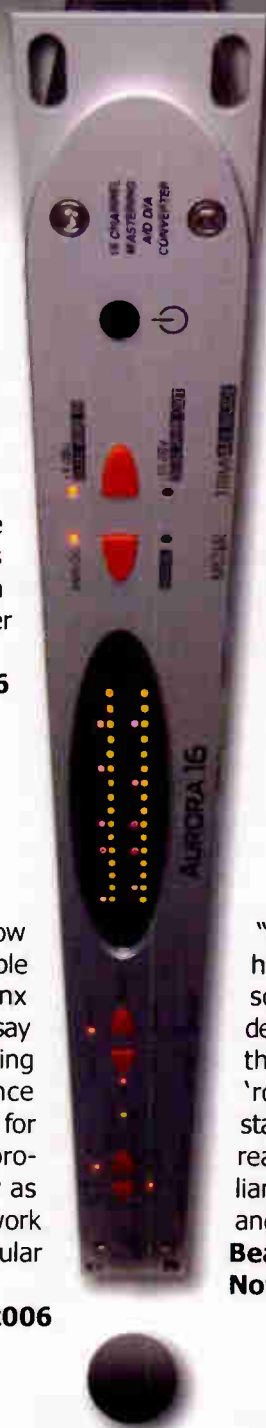
Pro Audio Review, March, 2006

"Lynx Studio Technology scores another hit with Aurora. Aurora has the necessities for audio acquisition / playback without some of the pricey extras that mastering facilities and careful audio engineers tend not to use, such as soft distortion or soft clipping limiters. It's no surprise that the Aurora provides superior sound for less than other converters with similar features."

Mix, June 2006

"Lynx offers a new standard in high end AD/DA conversion. The sound is very impressive. Aurora delivers a clear, transparent sound that is completely free of digital 'roughness'. Its stereo image is stable, with remarkable width and realistic depth. The highs are brilliant and shiny, the bass is punchy and solid."

**Beat, Germany,
November 2005**



Any questions?

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www.lynxstudio.com/aurora1

Fairlight Dream II

A New Direction in Workstation Design

In describing an ideal audio workstation, users want maximum power and speed from a system that's forward- and backward-compatible, versatile, expandable and safe from becoming obsolete in the near future. And while we're at it, let's throw in greatly reduced latency and lower cost.

With the unveiling of its new Dream II series, Fairlight (www.fairlightau.com) may have come closer to the ideal DAW. We've heard that one before, but this one's different—*very* different. Based on the company's new CC-1 (Crystal Core technology) card, the Dream II Series uses a large-scale Field-Programmable Gate Array (FPGA) rather than the traditional ASIC- or CPU/DSP-based approach. The CC-1 architecture is implemented on a new-generation FPGA chip manufactured by Altera Corporation (www.altera.com).

"In early 2004, we were looking into new directions in engine technology," says Fairlight's CTO, Tino Fibaek. "Rather than just going brute-force with bigger chips, we looked for an alternative, which we found in a specific family of FPGAs. CC-1 has a smallish PCB with a single, large FPGA chip, but we can change the contents of that chip on the fly. You might have one layout of the chip on one version of the software, but in the next software revision have a completely different layout of the chip. The equivalent of that today is removing the entire PCB from your old engine and installing a completely new one.

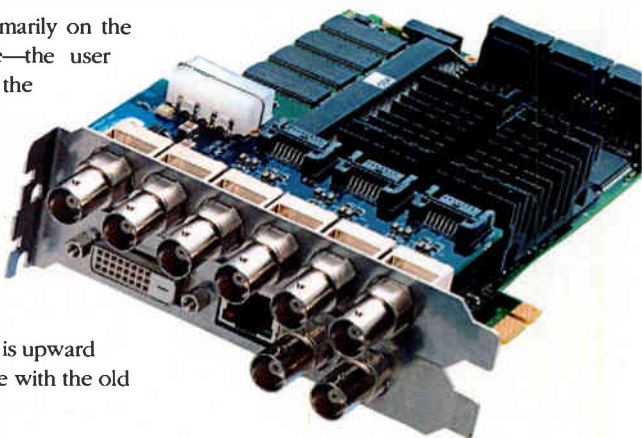
"From that point of view, our system has a lot of future-proofing built in," Fibaek continues. "The idea was to develop a system so existing Fairlight customers could easily upgrade without having to rework their rooms or spend a lot of time retraining

their staff. The change is primarily on the audio engine and I/O side—the user interface is unchanged and the surface controller technology doesn't change at all, and owners can upgrade to the new technology quite easily. And as users had fairly large libraries of media assets and projects, we wanted to provide access to all of them. Dream II is upward and downward file-compatible with the old systems."

INSIDE THE CRYSTAL CORE

The Crystal Core platform is named for the crystalline-styled interconnect scheme used at every level of system architecture. Processing blocks connect to other blocks, forming a lattice that scales the project's processing/routing demands to different nodes for efficient power distribution. As an example, a simple node handling I/O duties requires less resources than a complex node doing multichannel equalization, and the system usage is optimized by allocating the right amount of resources to each job. In traditional systems, the architecture is locked into standard configurations, with resources hardwired to signals that may not need them.

Another unique aspect of Crystal Core is its ability to combine floating point *and* fixed signal processing computations, using the advantages of both approaches. For example, 72-bit fixed point can be used for the equalization node, while 36-bit floating point is used in the mixing node. In other situations, such as audio metering, this level of precision is not essential and tasks could be handled by fixed point 16-bit processing.



Fairlight's CC-1 card with CMI expansion board provides hundreds of I/Os from eight MADI ports.

Fairlight refers to this as Dynamic Resolution Optimization (DRO) architecture and has patented the process.

Described as a "media-optimized FPGA architecture" forming an aggregation of IP cores, CC-1 is a PCI Express card fitted inside a host PC. This single card can provide 200-plus channels of audio recording/editing/mixing into 72 mix buses, with each channel equipped with 12 aux sends, eight bands of EQ and three stages of dynamics (limiter, compressor and expander), along with uncompressed HD video. If that's not enough horsepower, four CC-1 cards offer 960 channels into 320 buses, with no theoretical limit to the number of linkable processors, although Fairlight is initially only supporting one card per system. But the cost savings are significant. The CC-1's single FPGA yields the same performance as Fairlight's Constellation system, which uses 64 Analog Devices SHARC DSP chips.

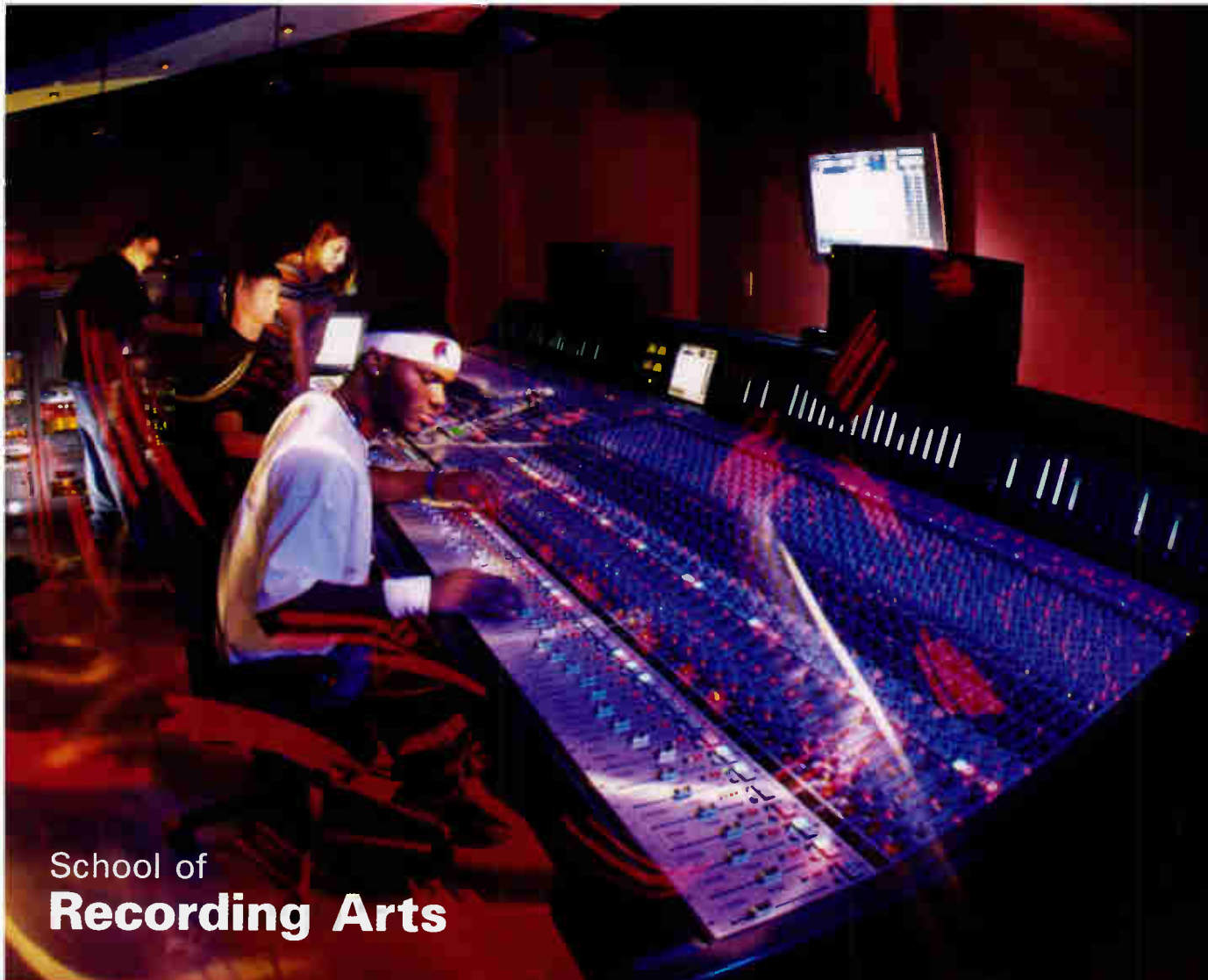
In larger facilities, Fairlight's new Media Highway protocol incorporated into the system can transmit multiple data streams in different formats, bit resolutions and sampling frequencies simultaneously, with clock transmission and recovery to/from any point on a network. The Media Highway protocol connects using a facility's existing cabling.

I/O OPTIONS

The system packs a lot of I/O on a single card. The CC-1's directly accessible I/O



SX-48 modular remote I/O accommodates a MADI I/O card and up to six 8-channel audio cards.



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connections include BNC MADI input and output ports (64 channels each) and a link to a small, single-rackspace SX-20 I/O breakout box. Designed to provide all of the I/O for a smaller system (or for convenient connections in a control room in a larger system), the SX-20 has two mic/line inputs, two line inputs, 12 analog outputs, four S/PDIF ins, eight S/PDIF outs, dual 9-pin machine control, video sync and LTC timecode. Another connector links to a small expansion board (Model CMI) that adds another three MADI inputs and outputs for a total of four MADI I/Os, plus

the connections on the breakout box.

In keeping with Crystal Core's chameleon-like capabilities to change functionality, the MADI ports are actually multiplexed data connectors and can become either MADI for audio handling or SDI video data streams. The MADI ports can be connected to any third-party MADI device or to Fairlight's SX-48 modular remote I/O.

Housed in a two-rackspace frame, the SX-48 accommodates one MADI I/O card and up to six 8-channel audio cards, providing AES EBU I/O with sample rate conversion,

eight analog inputs or eight analog outputs. Up to four SX-48s can be connected for up to 192 physical I/Os, with the system entirely configurable to the user's needs.

AND INTO THE FUTURE

"The world has changed and we can't keep looking at products using an old approach," Fibaek explains. "We can talk about the number of channels, increased speed, et cetera—and that's not a bad start—but most of the benefits of FPGA technology stem from its concept of virtual hardware. Every bit of design we're doing is making sure that it's scalable toward new technologies. FPGA is a fast-moving market at the moment and what we have today is perfect for what we're doing, but we have to be ready to jump on the next generation.


"Not only could the features of an application change—say, instead of having three stages of dynamics now, we could have four in the future—but the fundamental operation of the board could change completely. Instead of being very heavily focused on audio, it could be more middle-of-the-road on audio, with more video processing." This opens entirely new options to users, especially those in multitasking facilities. For example, a system could be taken down and completely reprogrammed to change from a large-scale audio mixer into something like a video color-correction device in a matter of seconds.

The process can also take place in real time. An FPGA's ability to upload partial algorithms while in session could allow continuous reconfiguration while operating. This would be ideal in the context of a user-controlled system, where tasks can change during a session.

"Changing the content of a FPGA is the equivalent of changing and re-routing an entire PCB," says Fibaek. "And along with changes in the front-end software and the user interface, we can continue to effectively develop the hardware, even though we shipped it to our customers a long time ago. We can continue to give users more features over time, which to me is the most exciting thing about this technology."


Fairlight is also exploring the expansion of the platform by opening the hardware and software architecture to other manufacturers and third-party (hardware and software) developers. The Crystal Core-powered product family will debut at this month's AES (Booth #326) in the form of a single CC-1 card that connects with any of Fairlight's Satellite, Station, Constellation and Anthem surface technologies. Deliveries are expected to begin later this year. ■

No Signal? No Problem!

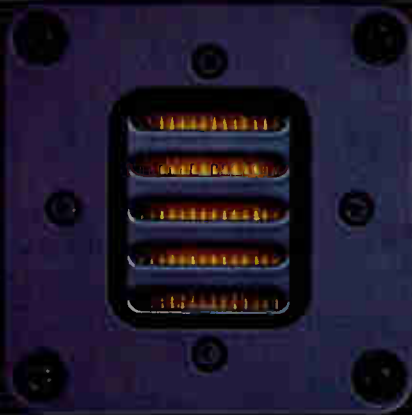


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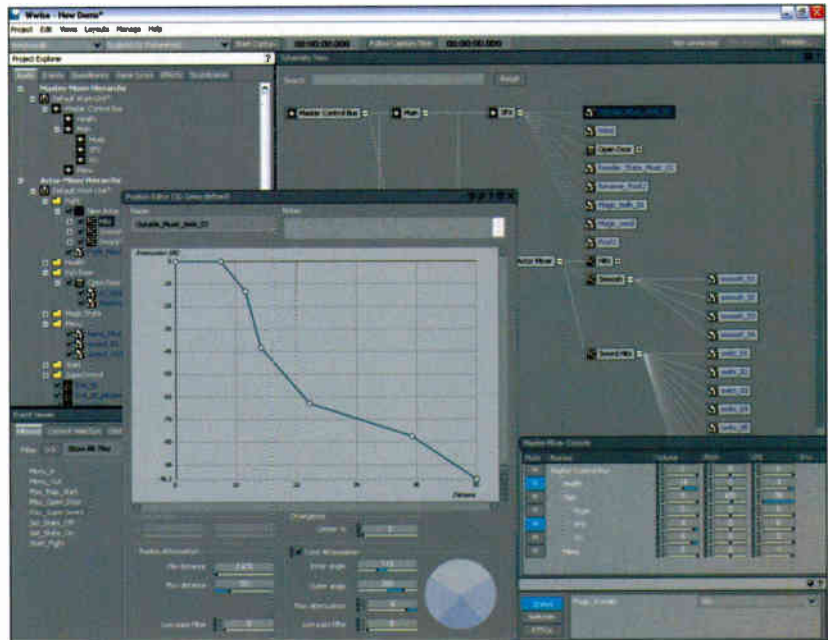
Streamlined Production for Videogames

Those of us who create sound for videogames long for tools that make more efficient use of our time and resources. Videogames have been in existence for almost 30 years, but it has only been recently that off-the-shelf software tools and technology have become available to game developers to refine their production pipeline. When it comes to game audio development, producing assets has never been a problem; however, integrating these assets into a game has always been a challenge, especially when dealing with multiple platforms such as Sony PlayStation 2, Microsoft Xbox, Nintendo Gamecube, etc.

For the most part, game developers have used their own proprietary tools or platform-specific ones such as SCREAM (Sony) or XACT (Microsoft). Unfortunately, when it comes to producing games for many platforms, some companies are left with the unimaginable option of, literally, hacking audio into their games to meet deadlines, in addition to the programmer-dominated mindset of building tools as needed, which amounts to editing text files. Many developers lack the dedicated resources to develop a comprehensive, multiplatform authoring tool designed with the sound designer in mind.

With the introduction of next-generation consoles such as the PlayStation 3, Xbox 360 and Wii, game audio development has become much more complex, in part due to these platforms' powerful capabilities, which provide sound designers the hardware resources needed to produce a very immersive and rich interactive audio experience for players. While many great titles have used proprietary tools with success, the need to develop games across many platforms with tools that allow the sound designer to have full control over audio integration has, until now, been a major issue, considering all of the bottlenecks in the process of completing audio development in a timely fashion; enter Wwise from Audiokinetic (www.audiokinetic.com).

Wwise was developed more than six years ago with the goal of making audio integration easier across multiple platforms (currently for Windows, Xbox 360 and PlayStation 3). The Wwise philosophy is based on the idea that programmer involvement should be at an



Editing the sound propagation of 3-D sound objects in the Position editor

absolute minimum (although they are not off the hook completely).

The Wwise system comprises two main downloadable packages: a highly optimized sound engine in the form of an SDK (software development kit) and the Wwise authoring tool. In addition, Wwise offers a downloadable user's guide and several video tutorials. I was immediately impressed with the documentation, which was very thorough and professional. Although the guide—with its nearly 600 pages—seemed initially daunting, it is indexed well and presented in a very systematic way, making learning relatively straightforward.

The nature of game audio production is such that programmers are still needed, albeit now in a very reduced capacity. To begin to use Wwise with a particular game project, a software programmer is needed to "connect" the SDK to the game engine. The game engine is the core software component of the videogame, keeping track of all actions in the game and handling graphics rendering, physics, collision detection, etc. It also communicates with the sound engine. Once connection is made, the game's function calls can "talk" to the sound engine in real time and apply all necessary playback functions, audio processing, etc. At this time,

Wwise requires a PC running Windows XP. Installing Wwise and its components was straightforward, with one extra step requiring the latest Microsoft .net framework. Note: Mac users, fear not! I was able to run Wwise on a MacBook using Bootcamp.


Within Wwise, the sound designer/composer creates objects, such as sounds, that are triggered when certain game-data conditions are met. These triggered sonic events can be several sounds with complex properties assigned to them. For example, I assembled a rifle shot sound that comprises several parts in sequence—the initial plosive "bang," the tailout of the shot in sequence or in layers along with a boom layer, all being triggered as actions by a single event.

In addition, you can create a corresponding event so that when the game sends a function call to that event, it causes an action to occur, such as play a sound.

The Wwise application uses a hierarchical structure, in which there are two top levels: the Actor-Mixer and the Master-Mixer. Wwise uses "parent/child" relationships so think of the Actor-Mixer and the Master-Mixer as the parents, allowing each section to have its own parent/child relationships. Within the Actor-Mixer level hierarchy, you have containers, sounds and additional Actor-

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For more information on Digidesign's ICON, please visit digidesign.com.

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Mixers. Containers are similar to folders that have properties and behaviors associated with them. Let's say that I want to trigger the appropriate footsteps based on the type of surface my player is walking on. I would use a switch container that would "switch" between a group of concrete footsteps and a group of grass footsteps. I would also create an event called "Play_Footsteps." When the game detects that my character is walking on a concrete surface, the game would send out a function call to trigger the "Play_Footsteps" event that would switch from the previous surface and play the concrete group of sounds. There are other types of containers, each with a particular behavior associated with them.

The Master-Mixer level hierarchy allows the designer to create new groups comprising control buses that group together all of the sounds, containers and Actor-Mixers within these buses, resulting in a final mix. A typical example of the type of groups within Master-Mixer would be dialog, sound effects, ambience and music. You can use events, which can be triggered to apply sweeping level adjustments, such as voice ducking, and effects to each particular group or to all groups.

The videogame industry has recently seen a lot of changes, including the announcement from Microsoft that it will release low-cost development packages for amateur game designers with the goal of distributing these games on Xbox Live. There are also more game development companies using off-the-shelf technologies and tools, such as Epic's Unreal 3 engine, Id Software's Doom and Quake engine, and so on. With Wwise, Audiokinetic has definitely hit a home run, making Wwise arguably the best audio middleware package to date. The latest version of Wwise, 2006.2.1, has many new features such as workgroup functionality, environmental effects, multilistener support, voice priority management, schematic view and batch editing capabilities. Wwise also provides tools for prototyping with the SoundCaster and the Game Simulator, performance analysis using profiling and real-time editing.

It's no wonder that Microsoft Game Studios (MGS) recently signed a long-term licensing agreement with Audiokinetic. *Shadowrun*, the highly anticipated title from FASA Studio, is the first title to take advantage of Wwise in a production environment. This will prove to be a trend as other game development studios are sure to follow suit. ■

Michel Henein is a freelance sound designer, consultant and entrepreneur in Phoenix.



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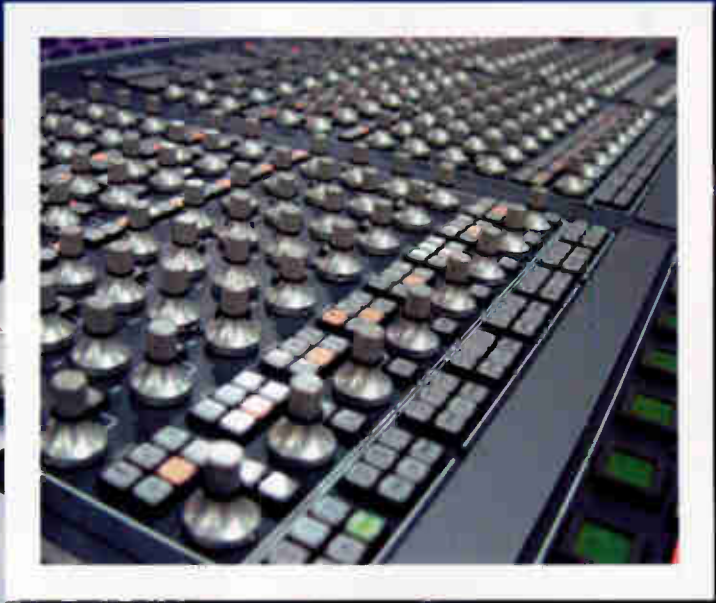
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Dolby DP600 Program Optimizer

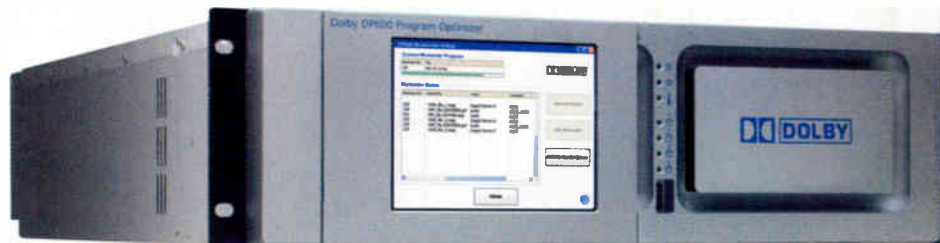
File-Based Loudness Control for Cable, Broadcast Systems

The DP600 Program Optimizer from Dolby (www.dolby.com) is the world's first intelligent file-based audio loudness analysis and correction system. The company's first outboard processor without audio connections (I/Os are gigabit Ethernet ports that accept audio files in RAW format or within popular media-wrapper formats), the DP600 expands upon the technology developed for Dolby's award-winning LM100 Broadcast Loudness Meter.

The DP600 gives cable, satellite and IPTV broadcasters the ability to automatically normalize the loudness of all of their file-based programming and commercials without impacting the original dynamic range. Programs can be normalized either by correcting metadata values or scaling the audio signal to a target loudness level; i.e., if the audio format does not include metadata. Other benefits include the option of faster-than-real-time, file-based encoding and decoding of Dolby Digital, Dolby Digital Plus and Dolby E content, as well as efficient transcoding between the formats.

"One of the original design goals for the system was to help people set a specific parameter in the AC-3 bitstream called dialnorm [dialog normalization], which is used by the decoder to normalize the output levels while it's being decoded," says Dolby senior broadcast product manager Jeffrey Riedmiller. "When dialnorm is used properly, it allows broadcasters to match commercials to programs, programs to programs and channels to channels."

With file-based distribution, one problem stems from the incorrect setting of the content's metadata configuration in the bitstream. "When people make DVD or broadcast television programs, they're responsible for setting this dialnorm parameter correctly—it doesn't automatically set itself—and then it's buried in the stream by the encoder," Riedmiller continues. "So for years, this feature has been in here, but rarely used. Now that people are transitioning to an all-digital broadcast system infrastructure, they've pulled out or disconnected a lot of their brute-force, multiband audio dynamics processors. So the program dynamics have gotten greater,



especially now that we have a digital delivery system that can deliver a dynamic range greater than 100 dB to the home."

Wide dynamic range is good, but with that comes the downside of varying loudness on playback. This is especially problematic when broadcasting a feature film—where the speech is mixed much lower relative to the maximum permissible level—and butting that up with highly compressed commercials or TV programming like sitcoms. "The loudness issue kept coming up in standards bodies and ad hoc committees throughout the broadcast industry for years and the situation seemed to be getting worse."

However, the solution to the problem came in part from an overall shift in the distribution system. "Now with so much work being done in the file-based space, we have the side benefit of having the entire program in our hands before it's aired. We don't have to deal with all of the problems of real-time processing, with short look-aheads or having to adjust the gain around constantly. Now, we can look at the whole thing and integrate the speech over the entire file. With the DP600 incorporating AC-3 and Dolby E, we don't even code it or recode it to do that—there's no impact on audio quality or dynamic range; we're just changing the little label in the stream that tells the set-top box where to set the volume."

As with other industries, downsizing plays a part in production methods. "These days, most facilities don't even have the time or personnel to set or check these parameters on a program-by-program basis," notes Riedmiller. "The DP600 gives any facility with a file-based infrastructure the ability to set these automatically, without any operator intervention. Besides its abilities to go in and access the loudness of the program and correct it, the DP600 also includes the ability to do transcoding,

encoding and decoding of all the Dolby audio flavors in a file-based system."

Going the next step, Dolby decided to open the system and publish its API (application programming interface), which is provided as an XML Web service using SOAP over HTTP, so that third-party manufacturers and developers could integrate DP600 functionality into their systems and workflows. "A lot of the networks and cable MSOs have software programmers on staff, and many want to do custom DP600 integration," says Riedmiller.

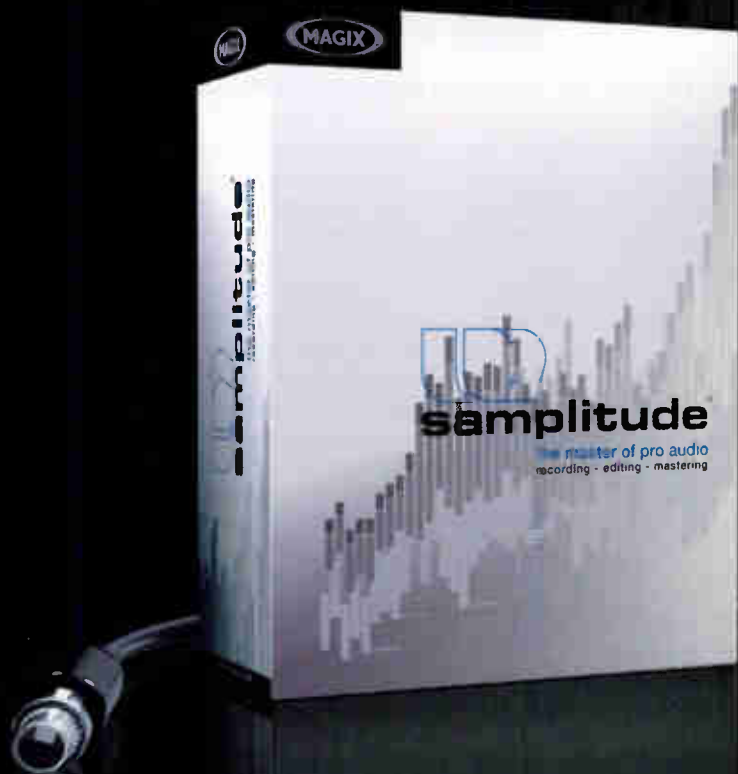
Dolby expects the API approach to be popular with users, but, as Riedmiller notes, there are other ways to drive the system. "One is a manual approach, where you open a Web page and submit jobs to the unit. The other is what we call a hot folder—or FTP watch—method. The user can define a particular folder on a network and instruct the DP600 to process or check any particular file type that comes in and look at the loudness, analyze it, correct it and check it, and then move it to another directory when it's completed. It becomes an automated process that melts into your day-to-day operations."

However, the list of potential customers for the DP600 extends well beyond broadcasters. "We've seen a lot of interest from networks and even some post houses—not just for its file-based AC-3 and Dolby E coding/decoding, but as a final-stop QC check before programs leave a facility. A lot of networks are requiring that dialnorm and other metadata be set appropriately, and the DP600 can offer a lot of peace of mind.

"The DP600 offers a simple-to-use solution that reduces loudness complaints and, in the end, improves the viewer's overall entertainment experience."

Dolby DP600 is slated to ship early next year. Pricing is about \$20,000, depending on what functions the user requires. ■

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Beyerdynamic Headzone

Portable Solution for Surround Sound Mixing

Offering a solution for monitoring and mixing 5.1 surround audio using standard-technology headphones is beyerdynamic's (www.beyerdynamic.com) Headzone, which will be unveiled at this month's AES show in San Francisco (Booth #1102). Touted as the "first portable 5.1 control room," the system comprises a half-rack headphone amplifier/DSP processor and DT 880 PRO HT headphones, a modified pair of the company's popular DT 880 PRO reference headphones.

"In a good studio, you have good localization in terms of a frontal plane and well-defined spacing on the speakers, and we're re-creating this sonic localization using headphones," says Paul Froula, beyerdynamic's pro audio business manager. "Headzone's portability offers an affordable and flexible alternative for audio engineers to mix surround sound."

Unlike other systems that do surround simulations using headphones, the impetus behind Headzone was creating a convincing and realistic model of the parameters in an ideal auditory space based on 5.1 speaker playbacks. Users simply connect their surround channels (L/C/R/Rs/Ls and, optionally, LFE) using six analog RCA jacks or a FireWire digital connection to the desktop base station, plug in the headphones and start working. A rear panel switch adjusts the operation for either -10dBV or +4dBu inputs. From there, Headzone's onboard Binaural Environment Modeling DSP processes the audio channels so they are heard in the headphones as they'd be perceived in an actual room environment with a realistic "outside the head" sound impression, calculating the reflections and loudspeaker placements to create the ideal room for listening to surround mixes.

Taking the system a step further is a new patented technology that continuously tracks the listener's head position in the room and adjusts the audio reproduction

accordingly. "With this Head-tracking feature, the two little *Jetsons*-type devices on top of the DT 880 PRO HTs transmit ultrasonic frequencies to the receiver to calculate the distance and positioning of your head," Froula explains. "If you turn your head to the right, the left earpiece will play the center and your right ear will be hearing the rears. It tracks the position of your head as if you were in the acoustical space." A device within the base station constantly monitors the incoming pulses from the head tracker. The arrival times from each side of the head tracker are compared and the system measures any delay differences between the two signals. Once a delay between left and right sides is detected, the rotation angle is calculated and DSP is applied to match the apparent head positioning. Everything occurs smoothly—in real time—so to users, the effect is transparent and they experience what would happen naturally.

The Headtracker connection uses a multipin connector that's separate from the standard ¼-inch TRS audio jack. This allows the 'phones to be used for standard stereo listening on any other system, but the Headzone base unit can also be used with headphones that do not have the Headtracker installed. In such cases, the system still provides a surround sound experience, but without the Headtracker functions. A front panel bypass control can switch the system from its Binaural Environment Modeling processing to act as a conventional, reference-quality stereo headphone amplifier.

In addition to acting as a multichannel digital input, Headzone's IEEE-1394 FireWire connection serves as the connection for using a PC (Windows 2000 or XP) or Mac (OS X) to tweak DSP parameters and store presets of favorite settings. The included Headzone Controller



The base unit doubles as a stereo headphone amp.



DT 880 PRO HT headphones

software provides interactive options for "modeling" this room. Unlike reverberation devices, which simulate the reverberant characteristics of a certain room, Headzone lets users custom-design the characteristics of a loudspeaker system in any control room with just a few mouse clicks. Among the available parameters are ambience level (essentially wet/dry-style adjustment), room size and positioning. The latter is a control for adjusting the virtual distance between the listener and the "speakers." The software is Apple Core Audio-compliant and ships with WDM and ASIO drivers. At press time, beyerdynamic was developing a Universal version of the software for use with Apple's new Intel-based Macs.

The software also includes some simple virtual bass management in the software that defeats the LFE input, instead routing sub bass from the front L/R speakers to the overall headphone mix.

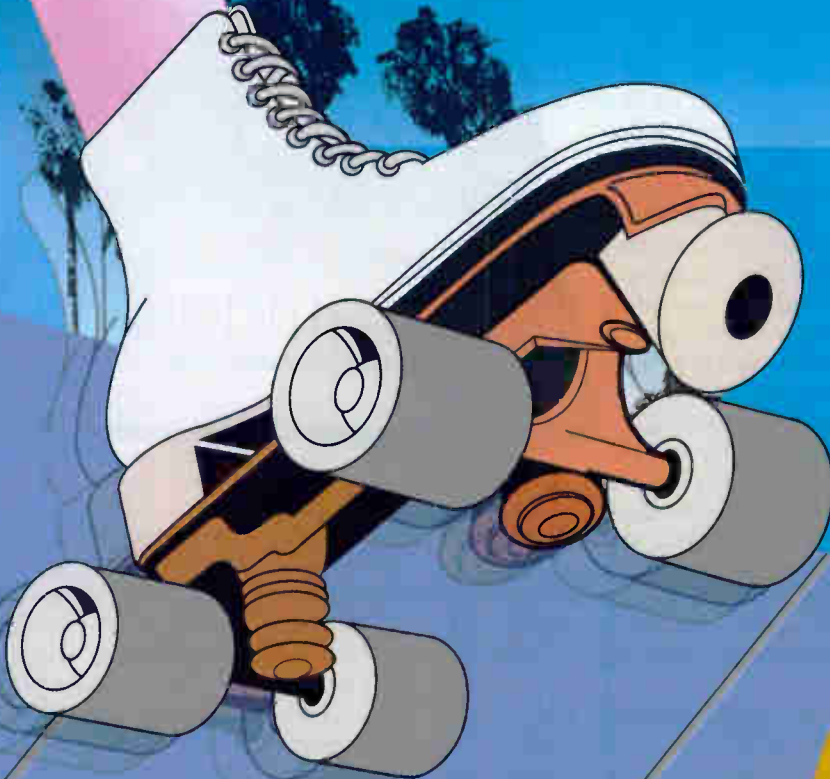
Besides its obvious uses in situations such as broadcast vehicles where space and SPL restrictions can create a difficult or impossible surround monitoring environment, Headzone is well-suited for editing suites and game development/design programming, as well as portable applications such as laptop production. In the consumer sector, Headzone's "silent listening" should appeal to late-night surround fans who don't want to disturb the neighbors or wake the kids. But for most pro audio engineers and producers, Headzone might provide an easily transportable personal reference system for surround mixing, used either alone or with studio mains or near-field speaker systems.

But the key point is, how does it sound? "It creates an incredibly realistic scenario if you're doing broadcast and don't have room for a 5.1 system in your truck," says Froula. "I was skeptical about this at first, but when I used it on several surround mixes, I was impressed." For the rest of us, we can listen firsthand and decide for ourselves when the system debuts at AES. ■

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World Radio History

Tascam DM-3200 Digital Mixing Console

Sixteen Motorized Touch Faders With FireWire Option

With the DM-3200, Tascam clearly demonstrates how far digital audio has come in the past few years. The DM-3200 incorporates a 48-channel audio mixer and DAW controller, and—with the addition of the IF-FW/DM FireWire interface card—it can function as the audio interface for your DAW. The DM-3200 runs via internal or external clock at sample rates from 44.1 to 96 kHz without sacrificing channels at high-resolution rates. An optional meter bridge provides LED meters for 24 channels, the L/R master bus and a SMPTE timecode counter. Console settings may be stored and recalled using Compact Flash cards or through Tascam's TMC (Tascam Mixer Companion) software (Mac or PC).

ON THE DESK

The board features 16 channel strips, each with a touch-sensitive, motorized fader; mute, solo and select switches; a rotary encoder; mic/line switch with 20dB pad; and trim control. These strips control 48 input channels in three layers. Additional layers provide access to 16 bus and eight aux outputs or DAW control. Tascam includes DAW profiles for Mackie HUI emulation, MOTU Digital Performer, Cakewalk SONAR, Steinberg Cubase and Nuendo, and Apple Logic, all easily selected from a dedicated Remote screen and stored with project data.

Other front panel controls include switches for screen navigation, C/R source (L/R, aux 1/2, digital in 1, 2-track return), mono sum (thank you), talkback, solo level and an LCD. Four rotary encoders and pushbuttons below the screen facilitate navigation and parameter adjustment. A three-position EQ/Dyn switch reconfigures the 16-channel encoders to form horizontal EQ or dynamics control strips for the selected channel.

EEEE I/O, I/OI

The back of the DM-3200 hosts extensive I/O: Sixteen analog inputs feature XLR mic and TRS line and insert jacks, with phantom power switches in banks of four on the front. Main L/R outs are routed via +4 balanced XLR and -10 RCA jacks. Control room monitor outs are ¼-inch TRS, while studio outs are -10 RCA jacks. Four pairs of TRS send/return jacks may be assigned to any bus or channel

as an insert, or they may be used for aux sends and effects returns.

Digital connectivity is equally comprehensive. Three TDIF and an ADAT optical I/O are built in, while two slots accept expansion cards for additional analog or digital I/O. Two stereo digital I/Os each offer AES and S/PDIF connectors, although you can only use one of each type at a time. Cascade ports allow two DM-3200s to be linked, sharing solo, bus, aux and main output paths.

Additional ports include USB, word clock I/O, MIDI In/Out/Thru, SMPTE in, Sony 9-pin, ¼-inch footswitch and a connection for the optional MU-1000 meter bridge. The review unit came with the MU-1000 and the IF-FW/DM FireWire expansion card.

EASY TO CONFIGURE IT OUT

One of the DM-3200's strengths is an extremely flexible routing system that allows any input to be soft "patched" to any console channel. Sixteen bus and eight aux outs may be assigned to any physical output. Between the analog, TDIF, ADAT and card slot I/Os, a multitude of I/Os can remain connected and chosen, depending on the session. When using the DM-3200 for a Pro Tools session, I configured the desk for HUI emulation, ADAT inputs on channels 1 through 8, analog ins on channels 9 through 16, and ADAT outs on buses 1 through 8 for use with a Digi 002. Another project required 24 channels of TDIF I/O, plus analog inputs 1 through 8 patched to channels 33 through 40 as effect returns.

Using the IF-FW/DM with Digital Performer (DP), I created I/O paths between DP and the DM-3200, and used the DP DAW profile for control. Each of these individual system configurations was stored as a project, and switching between them required only a button-push. This is a home run for studios that use various recording formats: Simply recall the project and the routing comes back, along with console settings, libraries

and automation data.

I used the IF-FW/DM to interface the DM-3200 to a Mac running DP, providing 24 I/Os at 44.1 or 48kHz sample rates. (The IF-FW/DM does not support 88.2/96 kHz.) Expansion cards automatically appear in the routing screen, where they are treated the same as built-in I/Os. The IF-FW/DM requires an exclusive FireWire bus.

Connecting it to an Adaptec DuoConnect FireWire/USB PCI expansion card in my G4 proved unreliable when opening TMC software: The software launched successfully only 50 percent of the time, and when it did launch, choosing Timecode Window or Meter Bridge under the Windows menu caused the app to crash. Connecting the IF-FW/DM directly to a FireWire port on the Mac solved this issue. TMC is a great addition to the package, enabling project management for multiple DM-3200s via USB, as well as providing a beautiful metering screen.

MIDI OPTIONS

In addition to MIDI In/Out/Thru ports, the DM-3200 has six "virtual" USB MIDI ports, each dedicated to a task. (Although the manual says MIDI is recognized by the IF-FW/DM card, it is not at this time.) Port 1 is used exclusively for TMC, and port 3 is reserved for MTC. When you add the DM-3200 to the Mac's AudioMIDI Setup, six ports are displayed. Ports 5 and 6 are used for Mackie Control and Mackie Control EXP,





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respectively, to facilitate MMC and DAW control. Neither of these carries timecode, so I had to add another Mackie Control device to AMS and then patch it to the DM-3200's port 3, after which the desk received timecode via USB.

EQ AND EFFECTS

Channels 1 through 32 include EQ, dynamics, phase reverse, aux, assignable inserts, direct out and bus assignment. (Channels 33 through 48 don't feature EQ, dynamics and phase reverse, so they're more appropriate for effect returns.) EQ is 4-band and fully parametric, with each band capable of sweeping from 31 to 19k Hz. Low and high bands may be changed to shelf-type or filters, in which case, the bandwidth control is grayed out. I found the EQ section very versatile, capable of creating subtle bumps, as well as surgical notches or peaks.

Dynamics include a compressor and gate per channel, each with some cool features. The compressor can be "patched" pre- or post-EQ, while the gate features a hysteresis parameter to reduce chatter. (This feature worked quite well on toms.) Dynamics may be stereo-linked to a neighbor channel or triggered from any channel. Because a single input may be soft-patched to more than one channel, it's easy to create a sidechain for de-essing by adjusting the EQ on one channel and using it to trigger the audio of another—very slick. At lower ratios, compression was transparent, but once you wind it up, it can get squashy, which is not necessarily a bad thing, depending on your tastes.

A dedicated screen mode key provides quick access to two internal effects engines that can generate just about any effect you might want, including delay, reverb, chorus, de-esser, distortion and a TC Works reverb.

AUTOMATION

The DM-3200 incorporates extensive snapshot and timecode-based dynamic automation that includes write, trim, safe and off for fader, mute, pan, EQ, comp/exp and aux levels; these may be selected globally (all modules) or individually. When the DM-3200 has locked to code, an indicator lights and the meter bridge displays running timecode. Automation controls on the front include write, trim, rehearse and revert, making operation very simple. To write moves or mutes, run timecode, press Write and have at it. The DM-3200's auto-store option includes a preference for either overwriting the previous mix or keeping the previous mix as a backup.

ACCESSORIZE?

If you're used to other Tascam products in the

company's digital line, then you know there are a lot of I/O and other options at your disposal. For instance, with the DM-3200, there is an 8-channel balanced analog card (IF-AN/DM), an 8-channel TDIF digital card (IF-TD/DM), an 8-channel ADAT digital card (IF-AD/DM), an 8-channel AES/EBU digital card (IF-AE DM), FireWire interface card (IF-FW/DM) or the very slick surround monitor card (IF-SM/DM), which is basically Tascam's DS-M7.1 monitor box on a card. This would give you the ability to turn the console into a complete surround workstation with monitor control and much more.

IN YOUR EAR

The DM-3200's mic pre's are clean and quiet with a surprising amount of low-frequency extension. The desk worked flawlessly and sounded great at high-res sample rates, but keep in mind that certain interfaces (e.g. TDIF-1) lose half their channels to route high-res data. This is not a reflection of the DM-3200's capabilities, but the nature of the protocol. The L/R mix bus has plenty of headroom; connectivity should satisfy any gear junkie, and the controls feel solid.

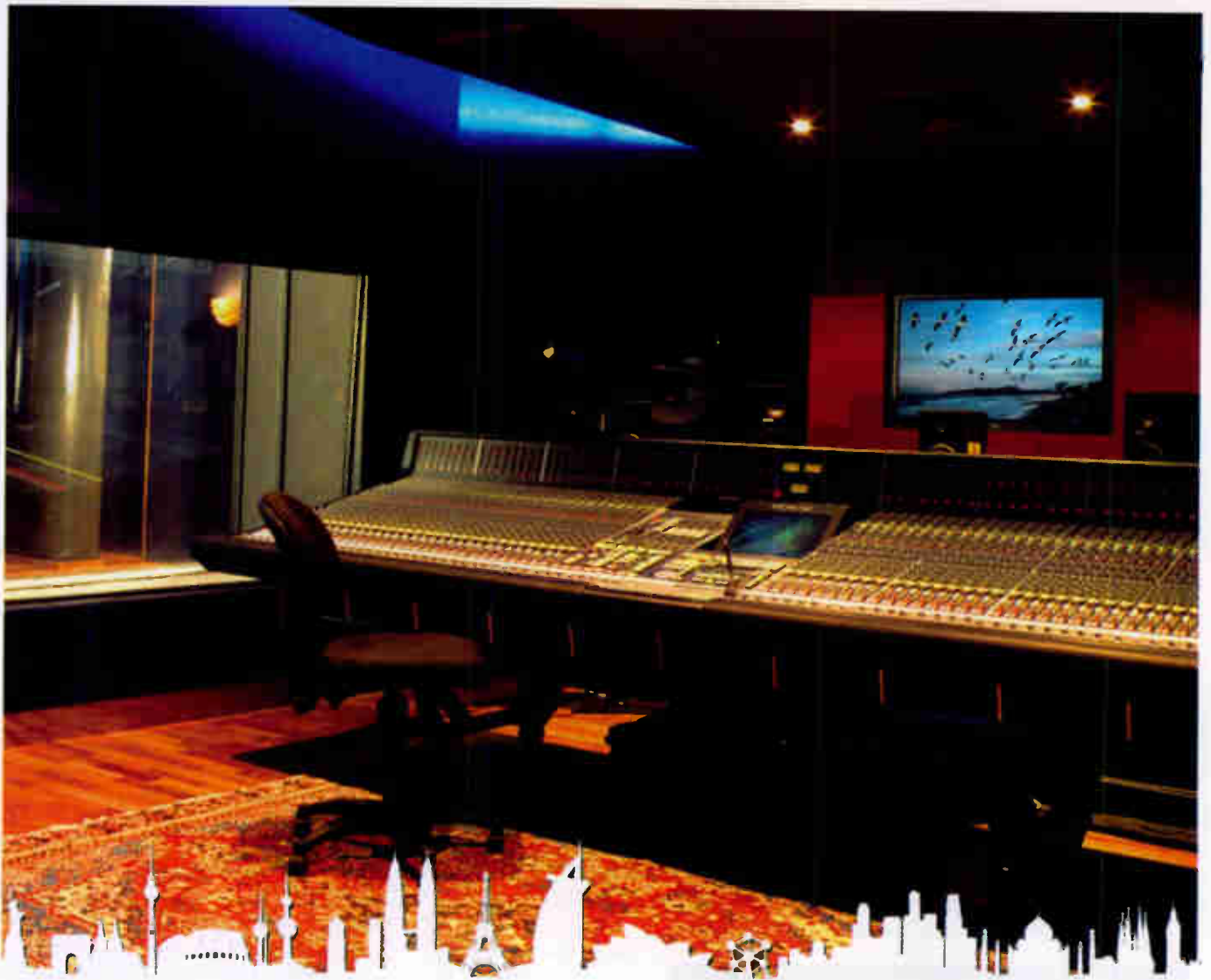
Other than that, my gripes about the DM-3200 are nit-picky: My version of the software CD did not include documentation for AMS configuration with DP, the automation manual or TMC for Mac; these had to be downloaded from the Website. [Eds. note: Tascam says this documentation has since been added to the installer CD.] When linking a pair of channels, the panners are automatically split hard-left and hard-right, and pan control on the front then becomes a stereo balance control. There is also a Stereo Width control on the Channel page that gives you additional panning options, including the ability to swap left and right. And it would be nice to have a discrete volume control for the studio outs, which follow the volume of C, R out via software trim control.

Other than that, this desk is amazingly full-featured for its price range. Its I/O is extensive, and the fact that you don't lose channels when you up the sample rate is a real plus. Adding the optional meter bridge and FireWire card makes it even more versatile and attractive to anyone looking for a DAW companion. Other notable features such as TC Electronic reverb, an easy-to-use OS and CF storage add up to a tremendous deal.

Price: \$2,999.

Tascam, 323/726-0303, www.tascam.com. ■

Steve "Woody" La Cerra is Mix's sound reinforcement editor.



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Focusrite Liquid Mix EQ/Compressor

DSP-Based, 32-Channel Plug-In Processors for Your DAW

The same patented Dynamic Convolution™ emulation technology developed by Sintefex Ltd. for Focusrite's popular Liquid Channel processor appears in Liquid Mix, an easy-to-use desktop DSP accessory for any DAW. Liquid Mix provides up to 32 plug-in (stereo versions count as two) emulations of equalization and compression processing chains at 44.1/48kHz sample rates from an included library of 40 compressors and 20 equalizers. Able to operate at rates up to 192 kHz, Liquid Mix's EQs and compressors are fully controllable by either the on-screen GUI or hands-on control using the compact hardware remote.

Liquid Mix is powered and connected to the DAW computer's FireWire 400 port, and a power supply is provided for FireWire ports without power rails. Because the DSP required for Dynamic Convolution is within Liquid Mix, there is almost no load on the host program's CPU. The EQ/compressor emulations instantiate and appear as VST/Audio Units/RTAS plug-ins within the DAW.

Presently, Liquid Mix runs in Mac-based

VST-to-RTAS Adapter that, upon installation, "wraps" Liquid Mix for use in RTAS hosts.

Installing Liquid Mix files and applications in a Pro Tools HD3 Accel system running on a Quad-Core Power Mac G5 went smoothly, and the unit's mono and stereo versions show up in the Wrapped Plug-Ins list. If you're familiar with using VST wrapped plug-ins, then you'll recognize some of the usual quirks, such as the common "focus" problem in which after typing a name in the plug-in GUI, you must click on any plug in Pro Tools' GUI to regain focus and therefore control of Pro Tools. Focusrite is working on this wrapper integration issue, which is nonexistent in VST hosts.

The Liquid Mix Manager is a small application that must be running before you launch the host program. This application sets Liquid Mix's operational parameters, beginning with the session sample rate and the maximum number of Liquid Mix instances. The max number possible over the 400Mb/sec FireWire bus at 44.1/48 kHz is 32 instances; selecting fewer instances reduces FireWire bandwidth usage. The app selects clip level at 0 dBfs. Liquid Mix can work with programs that use floating-point arithmetic to handle levels greater than 0 dBfs, such as Apple Logic; for Pro Tools, set the clip level at 0 dBfs. Start Minimized adds a handy Liquid Mix Manager icon to the Mac's dock. Finally, Liquid Mix Manager tells you whether the Liquid Mix DSP expansion card is installed.

The expansion card goes inside the controller unit and doubles the maximum channel count only at higher sample rates. At 88.2/96 kHz, eight channels are normally available, whereas the card gives you 16 channels. At 176.4/192 kHz, two channels are possible, and with the card installed, this doubles to four channels.



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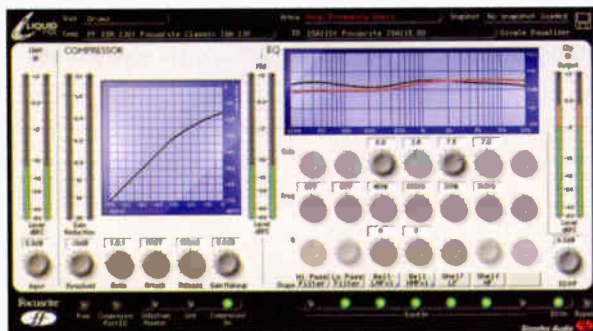
Due to FireWire's bandwidth, operating Liquid Mix while other FireWire devices are connected can be problematic. This requires workarounds, such as transferring audio from the FireWire drive to a second internal hard drive or installing a second PCI FireWire card.

Because of the DSP-intensive convolution process—and the bidirectional trip over the FireWire bus—there is an inherent latency of 2,056 samples (measured in Pro Tools) including the wrapper layer. VST hosts and Pro Tools' Delay Compensation automatically take care of this delay. This latency precludes the use of Liquid Mix for live applications. Also, using two instances of Liquid Mix on a single track (2,056x2) will exceed the allowed maximum of 4,095 samples in Pro Tools' Long Delay Compensation engine. If you use Pro Tools LE, which does not include delay compensation, then you will have to manually delay all other audio and MIDI tracks by 2,056 samples.

SIMPLE CONTROLS

Using and navigating Liquid Mix within the DAW is just like working with any other plug-in: Click on its slot in the Pro Tools interface, and it opens. It's good practice to type in a name in the Track window on the screen GUI after instantiation so that it shows up in the similar-looking controller front panel. Changes made on either the controller or in the GUI show up in both places.

If you don't name plug-in instances, Liquid Mix automatically names them, beginning with the default "Plug-In Number 01" and increment to 02, 03 and so on. This is



The main panel features oscillators, filters, effects and output level controls.

programs such as Steinberg Cubase and Nuendo, and MOTU Digital Performer. It also runs in Pro Tools TDM systems Version 6 and 7 with the proper FXpansion's VST-to-RTAS wrap plug-in. By the time you read this, Focusrite plans to ship a Windows XP version, and the Universal Binary update for Intel-based Macs will be available online.

INSTALL/SETUP/USE

Liquid Mix comes with a DVD-ROM installer that includes the convolution files, Liquid Mix Manager application, a PDF manual and the

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fine when starting a session by instantiating Liquid Mix instances beginning at track 1 and proceeding to 32. It's a good idea to use Liquid Mix and this auto-naming feature as part of your 32-track session template.

EQ AND COMPRESSORS

The screen GUI provides access to all EQ sections with separate gain, frequency and Q controls, whereas the hardware controller requires that you scroll through a list of all the Liquid Mix instances that you've created, select one by its given name or default number, and then select the single EQ section you want to adjust.

However, the controller's compressor controls—input, threshold, ratio, attack, release and gain makeup controls, along with the input level and gain reduction meters—mirror the GUI. The gain reduction meter has an expanded scale in 0.5dB increments up to -3 dB for dialing in exact compressor settings in the most critical range. The controller's single data-entry knob and a set of buttons select emulations, EQ bands, shape or Q, parameter values, the current track, EQ and compressor I/O, compressor post-EQ (the default setting is pre-EQ), plug-in bypass, load/save snapshots, stereo link on/off and the yet-to-be-implemented sidechain monitoring. I liked the controller's Go Back/Compare button to revert to saved settings or to the emulation's initial settings.

The controller's small, lighted LCD shows the compressor's I/O transfer function graph; EQ names, sections, curves and frequencies; and the list of EQ and compressor emulations available.

LOADS OF PLUGS

Liquid Mix comes with emulations of many modern and "stars of yesteryear" processors, and more are available as downloads. I enjoyed trying out legendary units that I've never used. Emulations run from the "Viking 1/Danish Classic Tube 1," an emulation based on Tube-Tech's CL 1B compressor, to "Stellar 1 and 2," emulations based on black-faced Rev D and a newer silver-faced Rev H UREI 1176LN peak limiters. Other emulations are based on processors from Manley Labs, BSS Audio, Drawmer, Amek, TL Audio, AMS Neve, Smart Research, Avalon, Teletronix, dbx, API, Empirical Labs, Joemeek, Millennium Media, Summit Audio, Solid State Logic, Pye, the rare Chiswick Reach and Fairchild 670, EAR, Chandler Limited, Pultec and even Focusrite.

I tried an emulation of a Pultec EQP-1 equalizer followed by a Fairchild 670

compressor on a lead vocal. This chain produced the perfect level of control and "vibe" that I was looking for. In general, I found that all of the emulations worked flawlessly and realistically represented the originals—warts and all! Warts? I discovered the amazing Free switch that unlocks controls and parameters not offered (or even thought of) in the original units. The Free switch is available on all compressor emulations.

On the Fairchild, the attack and ratio controls on the GUI are grayed out because the original unit never had them. Also, like the original, release time is offered as a choice of six different arcane time constants. With Free, I now had a Fairchild with variable ratio from 1:1 to 20:1, attack times from 0.1 ms to 2 seconds, and release times from 1 ms to 20 seconds. This is a fantastic feature because, operationally, vintage gear sometimes leaves a lot to be desired, although the sonic character is usually worth it. With Free, you have total and modern control over an old room heater like the Fairchild.

The quirky and smooth-sounding Pultec has only two frequency bands, both with simultaneous boost and cut controls. Within every Liquid Mix emulation, there are actually seven EQ bands available for realizing the original piece of gear. Using either the controller or the GUI, you can add EQ sections from any equalizer emulation into any other EQ to build your ultimate tone-shaper.

I added another midrange EQ band to the Pultec because I had already set its high-frequency range to 12 kHz. I added the HMF section of a Focusrite ISA 115—perfect for adding a little cut at 2kHz broad—to the vocal. One quirk is that, unlike a lot of plug-ins, the GUI's pull-down list of EQs retains no arrow at the currently chosen EQ.

MODERN DAW TOOL

Focusrite's Liquid Mix stands tall in the ever-growing crowd of external DSP effects processors. It is unique, being the only system with a hardware control surface and a large collection of emulations based on coveted and vintage analog equalizers and compressors. Liquid Mix is a time portal—a modern DAW tool that connects today's music-makers with the classic gear of a bygone era.

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Barry Rudolph is an L.A.-based recording engineer. He can be contacted at www.barryrudolph.com.

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JBL LSR4328P Self-Powered Monitors

Digital Networked System With Room Mode Correction

While speaker systems continue to provide more accurate reproduction as technology evolves, one element remains the same: physics. A great speaker in a bad room won't give you the transferability needed when mixing. JBL provided some acoustical relief from this problem with its LSR6300 Series, which allows the user to tune the system via DIP switches and parametric EQ section on the back of each speaker. Now, JBL has taken this concept a step further with the LSR4328Ps, which make Room Mode Correction (RMC) virtually automatic.

MERE SPEC-ULATION

The LSR4328Ps are a two-way, rear-ported system, employing an 8-inch polymer-coated, paper-fiber driver for the low end and a 1-inch silk-dome tweeter on top. The full-frequency response is a published 50 to 20k Hz, ± 1.5 dB. At -3 dB, you'll get 43 to 22k Hz. The digital crossover splits at 2.6 kHz via a fourth-order Butterworth filter. Maximum peak SPL with both speakers running can reach 118 dB, so be careful. The LSRs achieve this output via two built-in Class-A/B Monolithic power amps: 150 watts for the woofer and 70W for the tweeter. That's a sine wave power rating, with 0.1-percent THD at the rated impedance of 8 Ω and 4 Ω , respectively.

The well-thought-out inputs, outputs and the unique RMC remote control will cover just about any studio's requirements. Both the balanced XLRs and the 1/4-inch TRS inputs feed a 24-bit/96kHz, 64x oversampling A/D converter. Digital inputs come in both flavors—AES/EBU on XLR and S/PDIF on RCA—with sample rates of 32/44.1/48/88.2/96 kHz, ± 3 percent. Also included is a USB Type-1 port to operate the supplied Control Center software for Mac and Windows, an RMC 1/8-inch mic input and an RJ45 I/O for the proprietary HiQnet™ networking protocol. A handheld IR remote operates the entire system, including the LSR3212SP subwoofer (if connected), solos, EQ, volume, input switching and power up.

NETWORKING

The speakers are networked using a supplied Cat-5 cable so that any adjustments

to one speaker will affect the other connected speakers. Up to eight speakers and two subwoofers can be connected using the HiQnet networking technology. A simple set of DIP switches on the back of the speaker tells the network the speaker placement (L/C/R/Ls/Rs/Cs/Left Extra/Right Extra). Once set up correctly, the Room Mode Correction works for all speakers with the touch of a button.

CORRECT ME IF I'M WRONG

The RMC system analyzes the sound coming out of the speakers at your mix position via the included calibration mic. It then inserts a series of filters to compensate for low-frequency inaccuracies. The RMC computer listens to 73 frequencies in the 20 to 160Hz range (1/24th-octave centers) with a variable Q from 1 (1.4-octave bandwidth) to 16 (1/11th-octave bandwidth) and then applies attenuation of 3 to 12 dB in 0.25dB increments.

Setup is simple. Place your speakers, connect the Cat-5 cable(s), set the DIP switches for channel selection, connect the mic to the left speaker, set the mic at the mix position and press the RMC button on any speaker. A "chase pattern" on the front meter indicates that calibration is taking place and each speaker emits a calibration tone. In about 10 seconds, the meter stops, the RMC buttons stop blinking and your system is calibrated. To A/B the new contour, press the RMC button on any speaker to bypass the new settings.

Two bands of digital shelving EQ are also provided. You get 2 dB of cut or boost, with centers at 500 Hz for the low end and 2 kHz on top. EQ can be applied from the buttons on the front of the speaker or from the Control Center software. Using the software, the corner frequencies can be varied from 20 to 1k Hz for the LF and 1k to 20k Hz for the HF. There are six factory EQ presets and one user preset. The Control Center software



can override the factory settings.

The Control Center software allows you to precisely dial in the EQ and levels, if necessary, and it is extremely intuitive. I did notice one slight glitch: There are some "ticks" when switching inputs. Also, after saving a configuration, to reload a new configuration with, say, a different volume for each input, you must click Load and then find your configuration (I suggest creating a folder for storing all of your configurations), select it, click Open and then wait about three seconds for the configuration to ramp up. This workflow issue is only a minor inconvenience, but it would be handy to have direct presets for the configurations that are most often used inside the Control Center. The six current preset buttons available do not load any parameters other than the EQ settings; in other words, no levels or just EQ.

WHAT SOUND HATH TECH WROUGHT?


On my first listen, I thought the JBLs sounded "tubby" until the RMC removed a buildup in my room between 125 and 160 Hz, making them sound virtually identical to a set of LSR6328Ps that I use for reference monitors. The LSR4328Ps'

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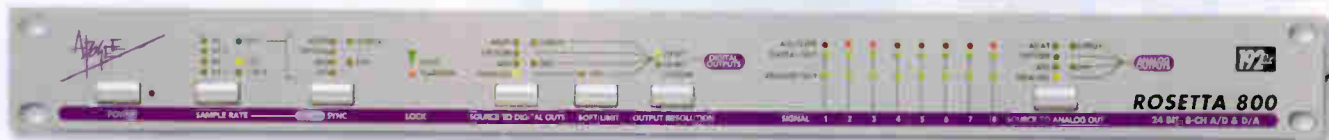
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imaging is virtually identical to that of the higher-priced spread. One notable difference between the 63s and the 43s is the drivers. Most apparent to the ear is the silk-dome vs. titanium tweeter, which will naturally have some varying characteristics. I found this difference most noticeable around the 4kHz range. This is exhibited in the 43s' tendency to come forward ever so slightly in that range, while the 63s are a bit more open at the top.

Saxophones came through a bit hotter on the 43s, with the 63s exhibiting more harmonic detail, making them sound more realistic. Guitars were reproduced in a similar fashion, with the 63s revealing more room space around the instrument and the 43s sounding more present around the 1kHz range. Both systems accurately reproduced Rhodes and Wurlitzers, with little sonic difference between the two.

Overall, the midrange around 1 kHz is more pronounced in the 43s, bringing snares and vocals slightly forward. The low-end punch was surprisingly similar in the 43s and 63s, in spite of their differing designs. I noticed that both LSRs would benefit from a subwoofer. The LSR4312P subwoofer is now available, but was not at the time of this review.

POWERING DOWN

I could definitely work with these speakers; I like the way they sound. They are very close to the LSR6328Ps (reviewed in *Mix's* August 2004 issue, available at www.mixonline.com), which are my main studio monitors. One thing I'd like to see is the ability to overlap the frequencies above and below 1 kHz on the 2-band EQ. This would allow you to drop the slightly forward nature exhibited at 1 kHz.

If you are considering the 63s and can't justify the extra cost for the extra power—that little bit of extra openness—and the THX pm3 certification, then by all means, the 43s are an excellent choice. And if you are putting together a surround system, then the networking and dollar advantage is huge. The software and associated GUI are very well designed, and I suspect the next generation of 6300s will benefit from this added technology.

Price: \$1,699, including two speakers, Cat-5 and USB cables, IR remote, microphone and software.

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Bobby Frasier is a digital audio product specialist, professional audio consultant and educator.



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RND Dynam-izer Compression Plug-In

Zone-Based Software Uses 48-Bit Precision

Dynam-izer is one of six new plug-ins from Roger Nichols Digital (RND), which now acts as the exclusive distributor and licensee of Elemental Audio products, the plug-ins' original designer and manufacturer. RND adds iLok authorization, operational improvements and Nichols' excellent selection of personal presets.

Dynam-izer operates at 24 bits, using 48-bit precision and working in stereo or mono at up to 192 kHz. It is offered in VST, Audio Units and RTAS formats (with TDM on the way) for both Mac and PC hosts.

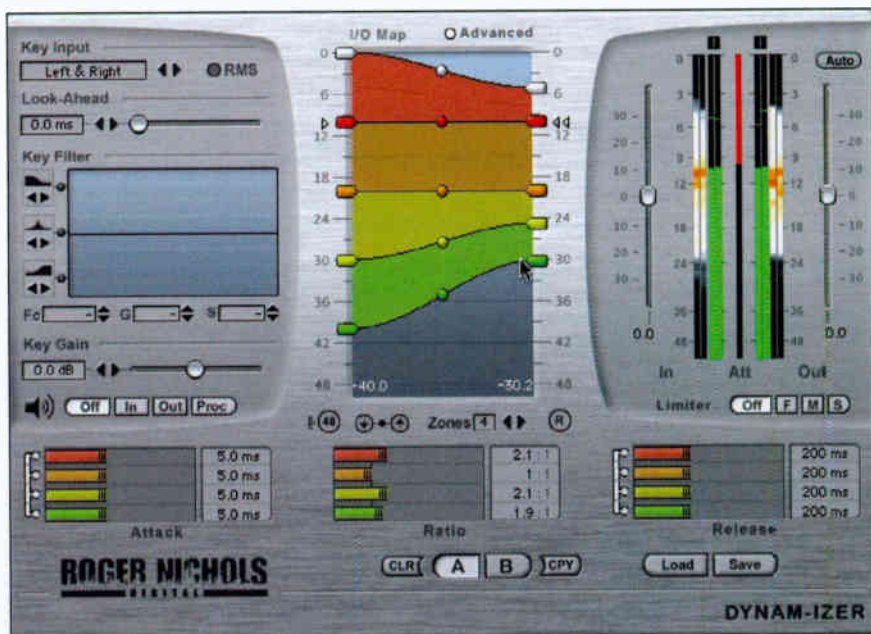
Dynam-izer is a revolutionary dynamics processor that will change the way you use and think about compressors and compression. The plug-in is not a multifrequency band compressor, but uses up to four zone compressors graphically controlled and monitored using a comprehensive GUI.

Zones are nonoverlapping sections of the input signal's total dynamic range, each bounded by user-defined upper- and lower-compressor threshold levels in dB. The desired compressed dynamic output range for each zone is also adjustable. As the input signal passes through the zones, each zone's resultant processed audio output is different, depending on the output level, ratio, attack and release time settings.

FEATURE-RICH GUI

Dynam-izer's GUI begins with attack, ratio and release controls. These span the interface horizontally at the bottom and include up to four sets of controls, one for each zone. Attack times range from 20 ms to 500 ms, and release times range from 5 ms to 5 seconds. Ratios from 0.5:1 (expansion) to 40:1 (compression) are available. Each set is color-coded the same as the zone compressor graphics and can be locked or ganged together in any combination to track together.

Changing the ratio of any zone affects that zone's compressor action, as well as other zones and the overall results. There are controls and options to adjust zone interaction, and the metering always indicates what's going on at any instant from gain compression to moments of expansion. If you save settings in workspace A and copy them to B, you can experiment



Roger Nichols Digital Dynam-izer plug-in interface, featuring the four colored compression zones

and further tweak B, knowing that you can revert to and call up workspace A.

KEY FILTER PROCESSOR

On the left side of the GUI is the Key Input selector and processor. Key refers to the source that triggers compression/expansion—usually the audio track you want Dynam-ized. You can select between peak (default) and RMS level detection and up to 10 ms of look-ahead. If your DAW host supports it, then you can also select the side-chain for the key input. The default is the input signal or either left plus right channels, or left or right for stereo instantiations.

The Key Filter section preconditions the key signal with a 3-band equalizer with seven different EQ/filter shapes available for each band. There are adjustments for gain, Q/bandwidth and frequency, plus Key Gain. Key Gain fine-tunes the depth of compression by adjusting either the input signal's level or the level of the external key signal going to the detector. Key Audition lets you hear the key signal before and after the Key Filter and Key Gain processors. The Proc function runs the key signal (be it external or input) through Dynam-izer to audition its effect and check that the actual input signal is affected as you desire.

WELCOME TO THE I/O MAP

Compression settings are shown and controlled with the I/O Map. You can select and view the signal's entire input and output dynamic range in 24, 48 or 80dB resolutions and select from one to up to four color-coded zones that match their attack, release and ratio controls.

I/O Map shows the "shape" of each zone compressor as defined by its threshold-level setting, ratio and output level. It is easy to see what the new, reduced dynamic range is and how it compares to the original uncompressed signal's dynamic range.

By click/dragging the threshold-level lever of any zone up or down, you'll instantly see the relationship between it and the output level predicated on the ratio selected. Click/dragging the output lever up and down effectively changes the ratio setting and dynamic range of that compressor zone.

Small white triangles show key input levels on the left side of the I/O Map graphic, and both key-processed output levels and key target levels on the right. Key target levels and key-processed levels track one another based on the attack and release settings. If the processed output is higher than target, then use a faster attack

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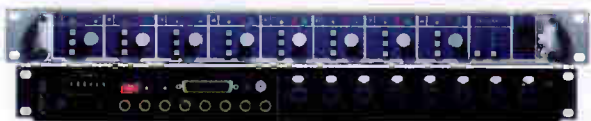
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time; conversely, if the processed output lags behind, then slow the attack time.

The ability to see this information graphically is new and far exceeds what you would normally deduce from the front panel settings or a transfer function input/output graph on a hardware compressor or software plug-in.

OUTPUT/METER SECTION

The input and output peak meters have five-second hold times, a gain attenuation indicator (colored red when compressing and blue when expanding) and the fascinating "cloud" meters that show the long-term distribution of audio energy. Finally, there is an auto-limiter with three response modes—fast, medium and slow—to ensure that the output level never exceeds 0 dB.

EXPERT PROBLEM-FIXER

Dynam-izer amazed me every time I used it as an RTAS plug-in in my Pro Tools HD3 Accel system. It worked wonderfully on all sources, from individual instrument tracks and vocals to full program mixes. I found Dynam-izer to be very good at converting problematic and/or extremely dynamic recordings into remarkably finished and

professional-sounding tracks.

My torture test was on a female vocal track in a song I had already mixed. This particular singer sang the verses very quietly with a somber tone and the choruses very loud with a much thinner and strident tone centered on 2 kHz.

Before Dynam-izer, for the verse sections I compressed using a 4:1 ratio, automated an equalizer boosting the 1.5 to 4kHz area to recover intelligibility and added a low roll-off filter to reduce the proximity effect whenever she sang too close to the mic. Choruses required me to automate the EQ to cut. Along with a lot of break-point level automation, I was able to come up with a "credible" lead vocal track, albeit not a stellar one.

With Dynam-izer inserted, I started over and turned off all automation and bypassed the EQ and compressor plug-ins. Using all four compressor zones, I arrived at a setting that did about 80 percent of the work I'd spent hours doing previously. I was able to expand in the lowest-level zone, bringing up the quiet verses, and I used the Key Filter to de-emphasize the aberrant 2kHz buildup when she sang loudly in the choruses.

After a couple of vocal rides and an automated low roll-off filter in the verses,

my work was done. The real benefit was that the vocal sounded much more natural and fit the track better than after all of my previous machinations with automated EQ and microscopic vocal rides.

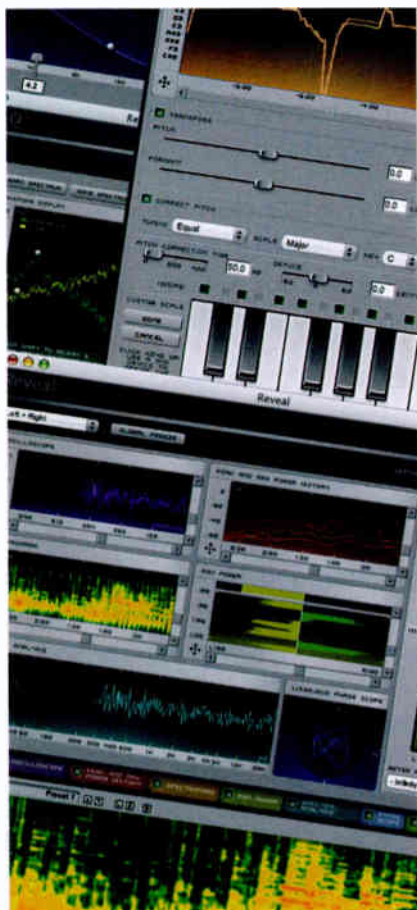
The vocal's compressed sound was great—modern-sounding and real—even at extreme squashes. This is because I tended to use much lower compression ratios. Each zone compressor has to work less, focusing on a narrow input level range rather than the entire range a conventional compressor has to deal with.

IT'S DYNAMIC

Dynam-izer has become my first go-to compressor for serious and transparent dynamic control. That Dynam-izer will function as an expander in one zone and completely different compressors in other zones is a major plus and completely unique. It was able to handle major compression challenges while still sounding great.

Dynam-izer sells for \$249 MSRP and includes a must-read 96-page manual. It is available both in a box or as a download from the Website.

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World Radio History



Korby Kat 4 Tube Microphone System

Large-Diaphragm, Hot-Swappable Capsules Modeled After Classics

In the auto world, a convertible means the ability to pop the top and have some fun, and it's no different in the mic world. Boutique microphone company Korby Audio has released a tube mic aimed at the high end, nicknamed The Convertible, and it's a beauty. The Kat 4 system I tested shipped with four capsules, mic body (12AT7 vacuum tube), shock-mount, power supply and cables—all inside a sturdy flight case. Three of the capsules each come delicately wrapped in a beautiful, flexible, tubular case that is fastened with a leather lace. The fourth capsule (which comes in its own wooden box) is attached to the mic body.

The removable capsules are modeled after classics, including ELAM 251, Neumann U47 and U67, and AKG C 12. Each has a number on the underside that alludes to its pedigree (251, 47, 67 or 12, respectively) and is hand-tuned and custom-designed to be as close to the original's signature characteristics as possible, except for the U67, which has an extended top and bottom end. The power supply works with each mic, but must be set via a sliding switch on the side of the box for the type of capsule used. The C 12 and U67 offer completely variable polar patterns set via a chicken head knob on the power supply, while the 251 and U47s are fixed cardioid.

Okay, so the elephant in the room is, which 47, 251, etc., were they modeled after? After all, tube life, capsule condition, overall age and types of use all change these classics over time. For this reason, the point of this review isn't to see if they are *exactly* like any of these mics I have used in the past, but if they are standouts on their own. I only thought of them as ballpark doppelgangers and didn't hold them to any kind of close scrutiny to the original, which I think is counterproductive.

CUSTOM OPTIONS

As each mic is handmade and custom-tuned by Tracy Korby himself, you have some options—you can have input into the tuning of your capsule. For instance, if you bring it home and listen to it through your rig and room and think it needs a tweak, send it back. In addition, you can

have your own C 12, U67 or other mic mimicked or matched in a new Korby. If bling is your thing, you can choose custom colors or go even more high end like one client who wanted a diamond embedded in the body instead of the Korby logo.

IN THE STUDIO

I first used the Convertible on a Yamaha grand piano in a medium-sized room. I placed the mic about a foot over the strings and used the C 12 capsule. It sounded great, but I wanted to hear more, so I muted the audio path and quickly swapped out the capsule for the U47. It was warmer and had slightly less detail at the top, but for this track, it was perfect. The swap is a bit unnerving at first because there is no screwing involved; the capsules simply pull off and seat using four sturdy pins. There is also a guide pin, so there's no chance of mismatching the alignment. Once you do it a few times, it's very easy.

Next I used it as a mono room mic using the C 12 capsule, and then a mono overhead in another session with the 251 capsule. Each sounded great, with the cymbals well defined and not washy; the bottom end was full on both capsules. I quickly swapped the 251 out back to the C 12 in the overhead application and, frankly, I liked them both. This is what's great about the system: You can quickly change your sound with very little time lost.

I next heard the 47 capsule used on a male vocal, and it was sweet with a warm bottom end and plenty of tasty top. It was compressed slightly through the dynamics section of an SSL G Series console, and that's all it needed. It sat nicely in the track, was even over the singer's range and perfect for this tune. Next, on a different singer who has a problematic voice that tends to be strident, the 67 capsule was perfect for the job, evening out the brashness of the vocalist and having lots of warmth and fine top end.



Lastly, I heard the 47 capsule used on a tuba played in an ensemble. The mic was about two feet above the horn, and the sound was rich and full with plenty of warm bottom end.

VERSATILE PLAYER

The Korby Kat 4 kills on a number of fronts. The implementation, fit and finish, and sound are impeccable. The most brilliant part of the system is the ability to hot-swap the capsules. You don't know the power of the concept until you've tried it—all without changing your placement or moving a cable. The custom options are also nice, with the ability to alter the tuning by sending it back to the factory.

There's also a fifth capsule available, modeled after the Sony C800G, and a separately sold FET body that allows you to get more bang for your buck. Speaking of bucks, it is not cheap to get into this system, but the quality, sound, ability to quickly change capsules and other options make this well worth the investment.

Price: \$7,000.

Korby Audio, 615/383-8797, www.korbyaudio.com. ■

Kevin Becka is Mix's technical editor.

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PHOTO: TOM MONROE

JOHN MAYER

TAKING CHANCES WITH HIS TRIO

By David John Farinella

About 45 minutes into the first date of the John Mayer Trio tour at The Fillmore in San Francisco last fall, the singer/guitar player stepped up to the microphone and exclaimed, "Ladies and gentlemen, the John Mayer Trio has just arrived."

"Oh, yeah, that was in 'Ain't Gonna Give Up on Love,' where all the nerves kind of went away and we did our thing," Mayer recalls nearly a year later as his latest release, *Continuum*, is about to hit shelves across the globe. That trio, which included Steve Jordan on drums and Pino Palladino on bass, played a run of shows that included appearances at The Grammys and a tsunami benefit, documented in the live album *Try!*

What Mayer was attempting seemed bold: transforming himself from a somewhat wispy pop icon to a hard-edged blues/rock player. Truth be told, Mayer

has always had that guitar-hero side lurking inside of him. It was bound to come out.

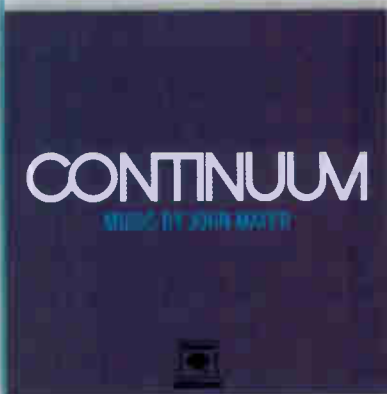
Those live dates gave Mayer the opportunity to clear out any residual nerves that may have cropped up once the red light flicked on for this new studio effort. "This record is nothing but a collection of dis-

covery moments where I went, 'I had no idea I could do that,' and did it," he reports. "In a lot of ways, I still feel like I have someone else's record in my pocket. Here's the thing: You think you have such a good idea of what you are capable of, and a lot of times you do have a good idea of what you are capable of. But what makes music so exciting is that, at any moment, if you try hard enough or if you commit yourself to the spirit of it, you can actually become more than you originally thought you were."

The live dates also gave the three an opportunity to polish song arrangements, explains drummer Jordan. For instance, on the songs "Vultures" and "Gravity," "I kind of knew what I wanted ['Vultures'] to sound like, and I think John did as well, and I think it helped us to refine it by playing it on the road," Jordan says. "We played that live and we played it for the live album, so for the studio version, we really know what works and what doesn't work, down to the tempo and the nuances of how certain turnarounds have to feel. Getting the combination—and this is key—between the perfect studio take of it, but not losing the live energy, that makes it special. That's very critical, because you can over studio-ize something and take all the life out of it. So we were cognizant of that when making the studio versions of these songs."

Mayer, Jordan, Palladino and a cast of engineers that included Joe Ferla, Dave O'Donnell and Chad Franscoviak, who also doubles as Mayer's live mixer, spent time in four studios—The Village in Los Angeles, Royal Studios in Memphis, and Avatar and Right Track/Sound on Sound in New York City—to record

—CONTINUED ON PAGE 168



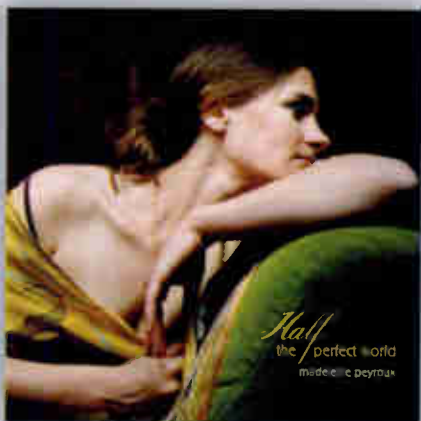
MADELEINE PEYROUX

MIXING OLD AND NEW, FUSING JAZZ WITH POP STYLES

By Heather Johnson

It took eight years for soulful jazz artist Madeleine Peyroux to follow her acclaimed Atlantic debut, *Dreamland*, an insightful piece that had critics calling her the “Billie Holiday of the ’90s.” Thankfully, she shortened the bridge between her 2004 sophomore album, *Careless Love*, and her new release, *Half the Perfect World*, which came out last month on Rounder Records.

For her new album, the Georgia-born, Paris-influenced vocalist reunites with her core *Careless Love* band—guitarist Dean Parks, bassist David Piltch and drummer Jay Bellerose—and producer Larry Klein. Klein’s broad musical palette stems from his work as a bassist for Freddie Hubbard, Carmen McRae, Dianne Reeves and Peter Gabriel, and as a producer and bassist for his former wife, Joni Mitchell, ex-Cars bassist Benjamin Orr, Shawn Colvin, Vienna



Teng, Julia Fordham and Holly Cole, among others—quite a broad spectrum.

On *Half the Perfect World*, Klein combined traditional jazz arranging and recording techniques with the bottom-end punch found on early soul records to create an album that’s sophisticated, but also represents a “unison of joy,” as Peyroux describes. “The last record came out quite dark from a songwriting perspective,” adds Klein, “so we worked with the idea of creating a more optimistic record.”

Quite by chance, and in a departure



from the Bessie Smith, Edith Piaf and Patsy Cline reworkings on previous albums, *Half the Perfect World* brings together a higher percentage of present-day songwriters, such as Leonard Cohen, Tom Waits, Walter Becker and Mitchell, as well as four originals penned by Klein, Peyroux and New Yorker Jesse Harris (best known for his work with Norah Jones). “I intentionally left things rather open. People from the label kept asking, ‘Well, what’s your plan?’” says Klein. “My plan is to make a great record.”

Klein and Peyroux began by narrowing down the long list of songs Klein had assembled, then tossed around additional cover song ideas during an extended pre-production process at Klein’s Santa Monica, Calif., Market Street studio. Once they agreed on a song, Peyroux would retreat to her rented apartment to not just learn the material, but live with it and ultimately *possess* it. She and Klein would then reconvene to discuss context, arrangement and harmonic ideas, usually working things out with a simple acoustic guitar/vocal take.

The Cohen song “Blue Alert” was due for release on Anjani Thomas’ debut album, but they chose to re-invent the song anyway. “He’s one of my absolute high-watermark songwriters,” Klein says of Cohen. “He had just written this new record with Anjani Thomas, and we were immediately floored by the songs. So I asked Leonard, ‘How would you feel about us covering these, considering Anjani’s record is coming out in

May?’ He said they would love it.”

The catchy Becker/Klein/Peyroux collaboration “I’m All Right” came out of sessions for Becker’s forthcoming solo album. The Mitchell song “River,” which became a duet with k.d. lang, came partly from Klein’s familiarity with Mitchell’s work. “I came up with an idea of what it would be like to hear two women singing a song about loss,” says Klein. “Very early on, I thought of Joni’s ‘River’ [which appeared on her landmark 1971 album, *Blue*], although it’s not a song you would naturally think of as a duet. But I thought it would be an unusual idea to hear two women doing almost a shared monologue, as if there were two women sitting at a table with a drink in front of them. In terms of figuring out who to have as another female voice, k.d.’s name came up very quickly. I knew she was a fan of the last record, so when we approached her with the idea, she was very excited.”

They recorded basic tracks at Sage and Sound in Los Angeles, the former home of jazz label Sage Records and jazz engineer studio owner Jim Mooney. Klein, who had played on a couple of jazz records there during Mooney’s tenure, heard the studio had been upgraded and renovated in recent years, and indeed it has. Current owners Steffan and Marc Fantini enlisted George Augspurger to retune the control rooms’ acoustics, and the studios have been rewired, remodeled and re-equipped, though they held on to Studio

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EN VOGUE'S "MY LOVIN' (YOU'RE NEVER GONNA GET IT)"

By Heather Johnson

When producers Denzil Foster and Tommy McElroy turned in *Funky Divas*, En Vogue's triple-Platinum sophomore album, to their record label, executives didn't want to release it. "We don't hear any singles," chimed the suits at Atlantic/East West. "It's okay, but it ain't no *Born to Sing*" (their first album).

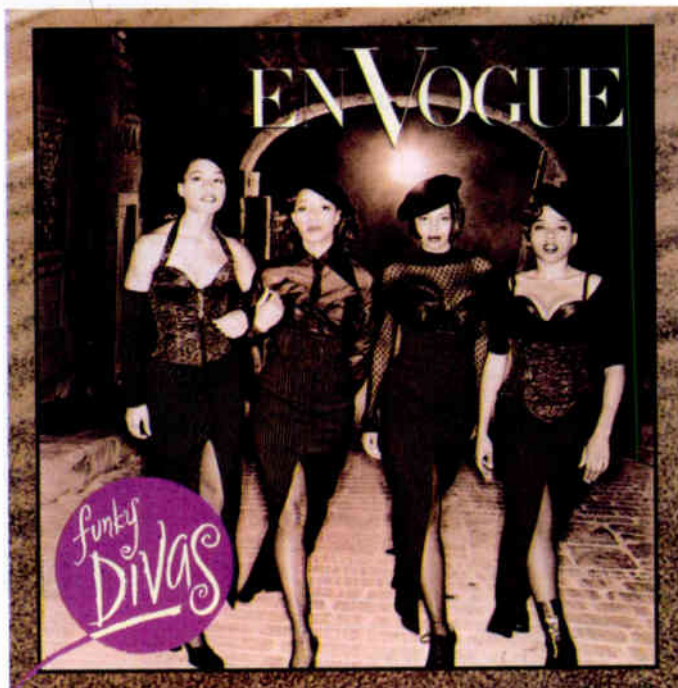
But the hot production team that revolutionized R&B with their fusion of hip hop beats and soulful melodies (Club Nouveau, Timex Social Club, Tony! Toni! Toné!) knew otherwise. They wrote, arranged and produced an entire album's worth of singles with En Vogue, and they didn't want to replace any of them.

Somewhat reluctantly, the label released the album as is, and when *Funky Divas'* debut single, "My Lovin' (You're Never Gonna Get It)," hit radio and retail in the spring of 1992, the public proved Foster and McElroy right. The single peaked at Number 2 on *Billboard's* Hot 100 Singles chart, dominated pop and R&B radio, and kicked off a succession of five pop hits and several more dance favorites from that one album alone.

At the same time, the stunning, sexy quartet sauntered into heavy rotation on MTV, solidifying their triple-threat image of sass, style and smarts. En Vogue had all the ingredients of the ultimate vocal group: four equally strong singers, all capable of singing lead, and all with distinct personalities to conjure many a young boy's fantasies. Foster and McElroy recruited vocalists Cindy Herron, Maxine Jones, Dawn Robinson and Terry Ellis in 1989 with this vision in mind, and as their careers developed, they became role models for later groups such as Destiny's Child, Jade and TLC, among others.

Not only did En Vogue's career peak with *Funky Divas*, but Foster and McElroy rose to become the San Francisco Bay Area's answer to Jimmy Jam and Terry Lewis. Their minimalist production style—heavy on groove, hook and vocals, light on filler—brought R&B music to pop ears, and "My Lovin'" stands out as one of the most memorable examples.

For most of their careers, Foster and McElroy had worked almost exclusively at Starlight Studios, a modest facility in Richmond, Calif., christened "The Bunker" by some of its regular clients. After En Vogue hit Platinum with *Born to Sing*, recorded at Starlight Studios and Live Oak Studios in Berkeley, Calif., Foster and McElroy bumped things up a notch and brought the group to Fantasy Studios to record their follow-up. In the early '90s, the popular studio hummed with nonstop activity from clients such as MC Hammer, Santana, Sammy Hagar and Chris Isaak, among others, although the En Vogue crew's "banker's hours" (roughly 11 a.m. to 9 p.m.)



and strong work ethic didn't allow for much socializing. "We were locked up in our own little corner of the world," Foster says, jokingly. "We didn't know who was coming or going until we saw another plaque on the wall!"

"My Lovin'" came together almost entirely in Fantasy's Studio B, the smallest of the facility's four studios, equipped with a Trident 80B, 21x26-foot recording room and a small lounge/vocal booth. They built a solid groove first. The song's underlying, hypnotic drum beat came from a combination of E-mu SP12 and SP1200, and Akai MPC60 drum machines. "Tommy liked the hi-hat sounds that he had in his SP1200, and Denny liked the kick that he had in MPC60," recalls engineer Steve Counter, Foster and McElroy's engineer since the mid-'80s. "These were not the standard sounds that came with the unit; they were sounds they had sampled themselves at home or from various sources." They recorded about six minutes of that beat, then added bass and other rhythmic elements on top. Foster created the bass line on a Korg M1. "I made a patch in the M1 that turned out to be a centerpiece," he says. "It had a sound called 'Pluck Bass Light.' I took some of the pluck out of it and it sounded like a nice five-string bass. I used it for a lot of things—all the phrasing; the only thing I couldn't do was actually pluck it!"

Aside from the vocals, the rhythmic foundation is the most crucial element of the Foster-McElroy formula, the bed upon which all other instruments are layered, and usually the inspiration for the song's basic melody. In the case of "My Lovin'," they had trouble coming up with a melody that matched the killer groove they had created. Foster, who handled most of the vocal arrangements, toyed around with several different ideas, but he says they all sounded "corny" or diminished the dynamic rhythm. So they set the track aside and pretty much finished the album before they revisited "My Lovin'." By then, Foster could listen with fresh ears, and new ideas came.

"I listened to that 't-t-t' rhythm, and then I heard this 'da-da-da-da' sound," he says of the "never gonna get it" rhythm. "Then I heard sort of a teasing sound. So I hummed that, and then the girls hummed it, and I thought, 'Okay maybe we've got to approach this song like you're teasing a guy or attacking a guy. We decided to escalate from [the single] 'Hold On' [from *Born to Sing*], which was about how not to lose your man again, and have some teasing thing going on with a man, and that's how the 'never gonna get it' came out. Then it became, 'What are you never gonna give up? Oh, my lovin'.' After that, it fell into place. We actually recorded the hook on the song, and me and Tommy moved to something else again."

When they revisited the track, they added in a sampled guitar that they liked, fleshed out the vocals and penned the lyrics, which still hadn't been written when En Vogue arrived at Fantasy to record vocals. "Denny would have a good idea for the hook and the verse melodies by the time the girls would come in, but he would write the lyrics right there, and then they would sing them," says Counter. "The words you hear, those lyrics are five minutes old."

Working off of the basic theme—the tease—Foster and En Vogue brainstormed on different lyrical ideas, this time, all revolving around the man who screwed up and the woman who ain't gonna give it up anymore. The verse melodies came at the same time, and when they got enough elements written, they sang them.

Counter miked all four singers with Telefunken Ela M 250 microphones and ran them through a vintage Neve 7198 mic/line mixer and a Teletronix LA-2A compressor to a Studer A800 2-inch tape machine. He captured their spot-on harmonies two at a time, with very little vocal stacking. "We didn't like the sound of having every girl to a track," says Foster. "Plus, the girls have pretty powerful voices, so we didn't really have to do anything except double them for stereo effect."

"If it were a three-part harmony, we'd do three parts on the left side, three parts on the right and that's it," adds Counter. "The more you stack them up, the more washed out they sound and you start losing presence. Denny wanted the vocals to be real present and full, so we doubled the parts and then left them alone."

The group re-recorded lines and verses many times over to get them right, but Foster and McElroy rarely sampled vocals and Counter never had to punch in syllables

or tune a vocal. (Real-time pitch-correction devices weren't available at that time, anyway.) "We all had really good pitch, so we didn't have a lot of bad notes and stuff," says Foster. "The problem came from them getting hoarse or tired. We pushed them to limits that I don't think they realized they could do, and that was the purpose. If you're going to have these great voices, let the world know how great they really are! If you got 260 horsepower, use all of it!"

McElroy added a few extra instruments: a chunky piano, a flute run, an extra keyboard riff. Then, with the basics on tape, Foster and McElroy joined engineer Ken Kessie at Can-Am Studios in Tarzana, Calif., to mix the album. Kessie synched up two Studer A827 2-inch machines for the 30-plus tracks, then mixed down to ½-inch analog.

Working on the room's "punchy" 56-input SSL 4000 E Series console, Kessie mixed most of the song relatively quickly, he recalls, employing Foster and McElroy's basic formula: "punchy drums, a killer groove, a strong bass line, warm and clear vocals, and very little ambience."

Kessie worked closely with the duo to fine-tune the arrangement, using the console's automation to mute various instruments during verses, bridges, raps or breakdowns. "It wasn't like now, where I could arrange the whole song in Logic or Pro Tools," says Foster. "It was more spontaneous. Before we got to the mix, we'd have all of the instruments playing all the way through, then start pulling stuff out to make things more dynamic."

As a result, the arrangement, like a lot of Foster-McElroy tunes, had "lots of open space," as Kessie recalls. "Tommy and Denny were so confident in their work; they just recorded what was needed and nothing more." They extended this less-is-more approach to the vocals. "Back then, it seemed like every vocal had the same pitched-up/pitched-down stereo harmonizer patch," says Kessie. "We all thought this sounded 'un-soulful,' so we avoided it like crazy. The En Vogue singers could really deliver and didn't need any pitch-enhancing gear. Also, there was very little, or no vocal reverb. It's commonplace now for dry vocals, but we were one of the pioneers."

Only on rare occasions did they make radical changes at the 11th hour. The big band-influenced breakdown in "My Lovin'" was one of those times; they recorded and spliced it in after the mix was finished!

The original breakdown had more of a "party" theme and didn't fit the song, they decided. They wanted something more dynamic that would show off the group's

harmony prowess in a big way. Foster, busy with some other last-minute details, passed the baton to his partner. McElroy went into the piano booth, alone, and toyed around with Andrews Sisters-style melodies.

"I remembered the chords I used to play in the big bands in high school," says McElroy, who worked as a jazz musician before meeting Foster in the early '80s. "Denny gave me a rhythm, and I took that and came up with a chromatic thing with a 4th, 7th, 9th, and a dominant 7th chord, and then stacked them. When I played it for Denny, he took one or two notes out and worked on it with the girls for, like, 10 minutes and started recording. I thought, 'Aw, man! I did it!'"

It worked like a charm. "At that time, they were so in tune and in tune with us," says Foster. "They were like an instrument that you could just pick up and play. Once they heard [the breakdown], they hit the notes like horn players. I don't even know what chord they started on, it just worked, and then it went easily right back into the song!" McElroy adds that as soon as En Vogue sang that part, "It was like real magic. I was so happy and proud of everybody. That became the highlight of the song."

Kessie assembled the final version of "My Lovin'" using one of his new finds: a 4-channel Digidesign Sound Tools system, the predecessor to Pro Tools. He captured the original mix and the new breakdown section into a computer, "and with the miracle of digital crossfades, was able to smoothly blend the two sections recorded months apart," he says. "Doing the same splices on half-inch analog would have been nearly impossible. I was nervous at the time because the analog-to-digital conversion lost some quality, but it goes to show that a great song trumps engineering anytime."

When they listened back to the final mix, they knew they had something special. Foster lit up, Kessie says. They knew that all of the struggle would pay off, and it did, in a huge way! Aside from massive sales, "My Lovin' (You're Never Gonna Get It)" solidified the message that Foster and McElroy had wanted to convey all along with En Vogue. "That song illustrated that there were four women in the group that could sing lead, as opposed to just Cindy and Terry, who were featured more prominently on their last album," says Foster. "It showed that every one of them could step up and be featured and be a favorite. Everybody could identify with someone from En Vogue." ■

JOHN MAYER

FROM PAGE 164

enough music to fill a pair of releases.

The recording dates started at Right Track/Sound on Sound, which is just off Times Square in Manhattan. "It was fun to be on 48th Street starting the record," says Jordan, who co-produced the album with Mayer, "and walking out into Times Square in between takes. That was a necessary vibe."

The Jordan/Mayer team dates back to a handful of songs on Mayer's 2003 album, *Heavier Things*, where Jordan played drums, and then a number of Jordan productions (Herbie Hancock, Buddy Guy and John Scofield) where the guitar player lent a hand.

According to Mayer, he asked Jordan to produce what would become *Continuum* the first time they played together. "There was something that had never been accessed in me as an artist that Steve went for immediately, which was the immediacy of playing live in a room and recording it. Before Steve, I didn't understand that what a microphone allows you to do is pick up what you are doing in a room and not target practice," he explains. "You're not aiming into the microphones; the microphones are there picking up what you are doing. I know that sounds remedial, but I had never seen it that way."

Though Mayer has had a hand in producing his albums, "I was always the fake producer [before]," he admits. "I was producer when I wanted to be, and then when I didn't want to be, I could go play Nintendo and have [Jack Joseph Puig, who produced the 2001 release *Room for Squares*] do vocal comps. What made this record different is that I stayed producer the entire time. Every single corner of this record I was there for and awake for, and it paid off."

According to Mayer, Jordan handled the rhythm section and he handled everything else. "He hears things that I can't because I'm not experienced enough to understand how things translate," Mayer says. "I deal in vocal harmonies and the up-high stuff, the guitar parts. When we come together on that, it makes *Continuum* what it is, which is an incredibly beautiful, thick, groove-inspired rhythm section with my musical desire to be beautiful, my sonic 'I want to be pretty' thing, which I'm not afraid to say I have. The combination of his grit and my approach to it—there's nothing else like it. We are kind of like a band, he and I. We achieve what great bands achieve, where it's a combination of two people's, or three or four or five people's sensibilities that

all come to make one. Steve Jordan is the sound of me, but better."

The first recording date came the day after the tsunami benefit when Mayer, Jordan and Palladino, with engineers Ferla and Franscoviak, went into the studio to record the Jimi Hendrix cover "Bold As Love." The next day they returned with additional bassist Willie Weeks, who was booked to play with Mayer and Jordan that weekend, and tracked "I Don't Trust Myself (With Loving You)." "That was unbelievable," Jordan remarks. "It's not one guy playing and another guy overdubbing. No, that was done together. It was amazing and you can't tell who was doing what. You can feel the magic of them playing their performance together."

Mayer loves hearing
his vocals really
compressed, so he can
be as dynamic as he wants
to and it always sounds
present to him.

—Chad Franscoviak

The level of musicianship and professionalism made recording this project a snap for engineer Franscoviak, and the fact that Jordan relies on all things vintage to get tracks to tape meant that it sounded warm when it got there. "The cool thing about it was that Steve has been doing this for so long. He has a very particular thing that he goes for," Franscoviak says. "He wants things to sound natural and kind of old-school, but very unique at the same time. It's all about the source stuff, not about fancy gadgetry."

For Mayer's vocal chain, Franscoviak says that most of the songs were recorded with a Neumann U47. For a couple of songs, he sang into a Neumann M269c, and on "I'm Gonna Find Another You," which was recorded at Royal Studios in Memphis, he sang into Al Green's RCA 77 ribbon mic. From there, the chain included a Neve sidecar stocked with 1073 mic pre's and then a UREI silver-face 1176. "On a couple of songs, we did experiment with splitting his vocals into two channels—one of them would be kind of a clean and one of them would be kind of a gritty—and we would take the second channel and put it through a Fairchild 670 and really crush it," Franscoviak explains.

"Then we would either blend it together or choose one or the other for the mix.

"[Mayer] loves hearing his vocals really compressed, so he can be as dynamic as he wants to and it always sounds present to him," he continues. "He likes way too much reverb when he's tracking, and then when we proceed into the mix, it will be reeled in a little bit. Generally, I will compress lightly going to tape or Pro Tools, and then in Pro Tools cream it with usually the Renaissance Vox."

Miking Mayer's guitar rig depended on the song's mood. On "The Heart of Life," Franscoviak threw a ribbon mic in the middle of the main room as a pair of amplifiers boosted Mayer's tracks. On the majority of the tracks, though, Franscoviak would put a Shure SM57 and a Beyerdynamic M88 right next to each other, about two fingers' width from the guitar cabinet's grille. He would take that track, blend it and send it to one channel. In addition, Mayer likes to hear room ambience on his guitar tracks. To accomplish that, Franscoviak would point either a pair of U67s or U87s about three feet from the edge of the semi-circle of amps, and then either a U47 or a Telefunken 251 in front of them all.

"Then, every once in a while, if he wanted a beefy sound, I would use a [Yamaha] NS10 speaker that had been reversed," Franscoviak says. "I would put that right up on the cone of one of his cabinets to get that real low-end thing." The best example of that, he adds, is the solo in "I'm Gonna Find Another You." Mayer's acoustic guitar chain was an AKG C24 microphone into 1073s.

To capture Palladino's bass, his instrument typically went into either an Ampeg SVT or B-15 into an Avalon U5 mono instrument preamp and DI. "I took the throughput into his amplifier and usually put a FET 47 close up, and on occasion an RE20. Then I almost always put an NS-10 on his bass cabinet to get the ultralow stuff," Franscoviak explains. "I would compress the DI and the FET 47 lightly, not in any way that would effect the dynamics of his performance, only for tonal reasons. I would never put a compressor on the NS-10."

Jordan's assortment of drums—which seemed to be *endless*, Franscoviak says with a laugh—were miked fairly conventionally: an AKG D 112, an RE20, a 421 or a Beyer M88 on the kick; snares got 57s on top and bottom; M88s on the toms; an AKG 451 on hi-hats; and on overheads, he either used a U67 or U87.

The only trick that Franscoviak used, which he fully admits stealing from Joe Ferla, was putting a Coles 4038 ribbon mic

directly over the center of the kit, parallel to the ground and as close in as possible without impeding Jordan's playing. "I generally compressed the snot out of that and I would run it through a Fairchild," he says. "That's a really interesting trick because you have all of your tight sounds, but you add that 4038 and it makes everything more exciting."

He also put a U47 about 18 inches off the ground and four to seven feet in front of the kick drum for a very specific sound. "At some point, we were going to hit that low-end waveform just right and it was going to fill that kick drum out," Franscoviak explains. "I would compress it a lot with an 1176, a lot harder than the overhead, because I wanted that low end to be there for every hit."

Most of the songs that were recorded for *Continuum* were written before studio time was booked, but there were a couple of instances when the three worked together to come up with something new. "The songs that we co-wrote came out of a thing that we liked to call 'free play,' where we all got together and played to come up with something," Jordan says. "We would get a groove going and then we'd hash out an arrangement. Then [John] would take it home and finish it lyrically. That's how we came up with 'Who Did You Think I Was' [on *Try!*]."

And then there was "In Repair," which featured Mayer and Jordan with guitarists Charlie Hunter and James Valentine and keyboardists Jamie Muhoberac and Ricky Peterson. "That was a complete studio inspiration lightning storm that was pretty amazing, actually," Mayer recalls.

It was also nerve-wracking, which brings us back to that night in San Francisco. "There's more at stake than anything you can play in Vegas," Mayer says now. "That's a lot resting on your coming up with something, and every time, we came up with something—every single time. I'm just following my instincts until my instincts don't work anymore, and then I'll defer to everyone else. There is no other gamble like that." ■

MADELEINE PEYROUX

FROM PAGE 165

A's precious Mason Hamlin grand piano and vintage Neve 8048. Klein and his engineer, Helik Hadar, chose the room partly for that piano, which had the dark tone they were looking for, but also for its abundance of Neve 1095 and 2254 compressors, as well as its European-styled 36x30 live room.

Hadar put the Mason Hamlin in its own iso room and placed drums and upright bass

in the live room, both heavily baffled because of the room's hyperactive acoustics. "It has a cement floor and unconditioned walls in conjunction with a high ceiling," Hadar says of the A room. "It's very reflective, so we spread out gobos, which slowed down the reflection that would travel when the drummer played at a loud volume."

Hadar then placed guitar in the second iso room; for acoustic, he placed a Neumann U67 three inches from the body and a KM84 on the neck. "The U67 gives me the relaxed tone of the instrument, and the KM84 gives me the pluck and the grit," he says. Electric guitar was miked with a Shure SM57 and a Royer 121 ribbon mic, both of which ran into a Summit Audio compressor to Pro Tools HD. Upright bass was miked with a U47, also running straight to Pro Tools.

For the drums, Hadar spread out about four different pairs of X/Y omni room mics at varying distances from the kit. "The whole idea was to capture each element at different distances, as well as recording [the] close effect. So, I would capture numerous angles on each instrument, and once the songs were built up, I would have a better sense of which mic at which distance would sound best. So I spread things out as much as I could."

Capturing the room was important on this album, which Klein describes as "a dream of a jazz record" because it incorporates traditional jazz elements even though it's not a traditional jazz record. "When you listen to the early jazz records of the '40s, or the Blue Note Records of the late '50s and early '60s, you always heard a lot of room, and there was a fair amount of compression used," he says. "There was a certain blood that went out of the sonic character of jazz records in the early '70s; it's a very chilly feeling. With this record, I wanted to break some rules concerning the way that modern jazz records are made."

They nailed most of the basic tracks in about six days, then regrouped at Klein's studio for vocals and most of the overdubs. Hadar helped build the studio, which features a Pro Tools HD 3 rig, a smattering of Neve mic pre's, their preferred Inward Connections compressors and line amps, good mics and no control surface.

"My career has been divided in two routes: 10 years of analog and 10 years of digital," says Hadar, who's worked with Klein since 1998. "I started working in Pro Tools during a very early age of it, so working with a keyboard and a mouse has become a very easy task."

They recorded Peyroux's vocals in the control room, where she feels most comfortable, with a Neumann U67 through a Neve

1073 mic pre, "recorded flat," then into an Inward Connections compressor to Pro Tools. "I would compress the upper side of the mid, but I didn't touch the body and I didn't EQ," Hadar says. With Peyroux in the same room as her producer and engineer, she can sing without "that scrutiny situation" from the other side of the glass, which further raises her comfort level. Plus, they can tend to her needs more quickly, which makes for a smoother process all around. "We're right there for her to make adjustments," says Hadar. "We all wear headphones, and from that moment on, we're in her environment. We can alter balances and once she's comfortable, she can take off."

A natural talent, Peyroux does her best work when she's not thinking about it too much. "It's a very delicate process," says Klein. "I don't want to give her too much input or direction, because most of the time, she'll start thinking too much about what I just said. Almost always after I suggest something, I'll say, 'Okay, now forget what I just said and just sing.' Singing comes from a very pure place for her, so we have all sorts of methods to help her not think about what she's doing."

The excellent cast of musicians—which includes the core band, as well as touring drummer Scott Amendola, Gary Foster (sax), Sam Yahel (keyboards), Greg Leisz (pedal steel), Till Bronner (trumpet) and Larry Goldings (celeste)—plays from that same creative place. "They're all just phenomenal musicians and share the ability to play more from their heart than from their head," says Klein.

They mixed at Market Street, as well, with Hadar taking special care to maintain the recordings' spacious sound. "This was very fragile content, so most of the stuff was left untouched," Hadar says. "I ran the entire mix one more time through the Inward Connections EQs, just to get some mild sheen and soft balance. I used the [ADR] Vocal stressor and Waves plug-ins a bit on the vocals, but in general, I EQ'd little and processed very little." He then turned the contents over to Bernie Grundman for mastering.

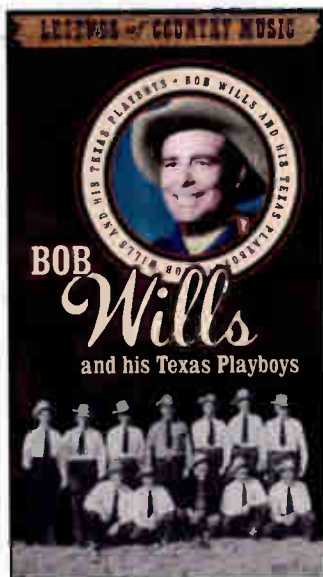
With *Careless Love* selling more than a million copies worldwide, *Half the Perfect World* has a tough act to follow. But as Peyroux's timeless vocals move through an innovative batch of material, listeners may discover her most potent work yet. "We laid a lot of the groundwork with the last record, so from the outset, she was more comfortable and confident, and I knew how to better help her from every angle," says Klein. "We worked together even better in every facet of the process. It feels like a nice big step forward." ■

Bob Wills and His Texas Playboys

Legends of Country Music
(Columbia/Legacy)

I've gone through Bob Wills periods before—about once every decade or so, I rediscover the great Texas fiddler and bandleader. I listen obsessively for a while and then, for whatever reason, forget about him again. But now, Legacy's magnificent new four-CD, 104-track retrospective has really gotten under my skin. It covers the entire arc of his career, from his first recordings with the Fort Worth Doughboys in 1932, through his influential late-'30s and '40s sides fronting the Texas Playboys, which established him as the King of Western Swing, all the way up to his last session in the early '70s. The first two discs, especially, are mind-blowing: This is the crossroads where blues, old-time country, Tin Pan Alley pop, Hawaiian and early jazz meet and were fused into a distinctive sound that transcended both race and style. Most of it is dance music—first and foremost, this was a great live band that loved to get people up and dancing. The virtuosity of the group is often astonishing: It's a *crime* that steel guitar titan Leon McAuliffe, guitarist Eldon Shamblin and pianist Al Stricklin are not better known. The solos are spread generously around the band, as Wills plays the genial leader and emcee, punctuating tunes with his famous "aw-haaa!" or "Play it, Leon!" Tommy Duncan is the main singer through the decades—another underrated figure—but I also love the mischievous twang in Wills' vocals. This is good-time music through and through—a real treasure trove.

Original producers: Art Satherly (and a handful of others). No engineers listed. Recordings made in un-named studios in Dallas, Chicago, Hollywood, Fort Worth and Nashville. Compilation producer: Greg Geller. Mastering: Vic Anesini/Sony Music Studios (New York City). —Blair Jackson



Linda Ronstadt and Ann Savoy *Adieu False Heart* (Vanguard)

What a heavenly match: Ann Savoy is a singer known for her wonderful Cajun-flavored music in the Savoy-Ducet Band and the Magnolia Sisters. Linda Ronstadt is, well, Linda Ronstadt—she brings magnificent chops, great taste and an authenticity to any project she tackles. This splendid collection of *nouveau* Cajun and acoustic roots music features tunes by the likes of Richard Thompson, Julie Miller, Bill Monroe and even a gorgeous reworking of "Walk Away Rene," and every second of it rings true. The way the singers' voices blend, the always tasteful accompaniment by guitar, fiddle, banjo, dulcimer, bass and an occasional mini-string section is just about *perfect*. This is music of longing and sorrow mostly, but it's also achingly beautiful. A true gem.

Producer: Steve Buckingham. Recorded and mixed by Gary Paczosa; additional engineering by Brandon Bell. Studios: Cypress House on Bayou Tesche (Parks, La.); Minutia (Nashville); The Plant (Sausalito). Mastering: Doug Sax with Sunny Nam/Mastering Lab (Ojai, Calif.). —Blair Jackson



The Red Jumpsuit Apparatus

Don't You Fake It
(Virgin)

This CD's staying on Repeat. The breakthrough album by the Red Jumpsuit Apparatus charges out of the gate with a feel that's hard to categorize—they deftly merge screaming metal riffs with layered harmonies, bringing a mature and pop-ish sensibility to good ol' rock 'n' roll. While frontman Ronnie Winter does a fine job of keeping up with the scorching guitars of Duke Kitchens and Elias Reidy, I'd like to see him toughen his stance a bit. The rhythm section of bassist Joey Westwood and drummer Jon Wilkes keeps the energy high throughout. Producer David Bendeth (Breaking Benjamin, Hawthorne Heights) lends his subtle expertise, but clearly wants to allow the young group to go where their musical tastes take them.

Producer/mixer: Bendeth. Engineer/digital editing: Dan Korneff, John Bender, Kato Khandwala. Studios: Water Music (Hoboken, N.J.), Right Track (New York City). Mastering: Ted Jensen at Sterling Sound (New York City).

—Sarah Benzuly



Gigi *Gold and Wax* (Palm)

"Mesmerizing" is the word for this second eclectic collaboration between the stunning Ethiopian chanteuse Gigi (Ejigayehu Shibabaw) and the always adventurous and creative New York producer Bill Laswell. I don't speak Amharic, but so much is communicated through Gigi's hypnotic, carefully layered vocals and the spellbinding arrangements, which—typical of Laswell—run the gamut from soulful funk, to "world music" touches from India and West Africa, to jazzy and spacy excursions. It's a *wonderful* recording, with each layer of percussion, keyboards of unending variety, airy guitar atmospherics, peppery horns and swelling string patches given its own place in the spacious but present mix. Above it and *through* it all, Gigi's vocals dance and glide—a glorious instrument, too. A rich, poly-cultural brew.

Producer: Laswell. Engineer: Robert Musso. Additional recording: Abegasu Shiota. Studios: Orange (Orange, N.J.), Kabena (Springfield, Va.). Mastering: Michael Fossenkemper/Turtletone (New York City). —Blair Jackson



PF Sloan *Sailor* (Hightone Records)

His name isn't a household word, but PF Sloan holds an essential piece of the American musical puzzle. In the 1960s, he played on recordings by The Mamas & The Papas and wrote Johnny Rivers' hit "Secret Agent Man," as well as one of the most powerful anthems of that era: "Eve of Destruction." That song still resonates, and Sloan reclaims it on his first U.S. album in 30 years, *Sailor*. This release features superb original songs, strong vocals and guest appearances by Lucinda Williams, Frank Black and Buddy Miller. Sloan bridges the gap between his early days in the L.A. folk scene and his present state of mind, and shows us he's lost none of his edge and none of his brilliance.

Producer: Jon Tiven. Engineers: Tiven, Jake Burns, Earl Drake, Miles Wilson, Matt Yelton, Eric Corne, Dusty Wakeman, Fran Kowalski, John Hurley, Paul Gannon. Studios: Hormone Studios, Loud Studios, Big Ears Studio, Sound & Video Creations (all in Nashville); Mower Studios, Mad Dog Studios (L.A.). Mastering: Jim Demain/Yes-Master! (Nashville). —Barbara Schultz





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11th Annual Mix L.A. Open

All Photos by Paul Lester

It was another beautiful day at Malibu Country Club as the audio industry came to play at the 11th Annual Mix L.A. Open last June and support the causes of the Mix Foundation. First-place honors went to The Village team with a score of 56. Second place went to Team Ed Cherney with a score of 58, followed by third-place finishers The Document Room with a score of 60. Closest to the Pin honors went to Gabe Whyel. Craig Rovello won the Longest Drive contest and Chris Rossasen walked away with the Longest Putt Award.

Through the generous support of the event's sponsors, the Mix L.A. Open was once again a huge success. Proceeds from the golf tournament and silent auction will go to the House Ear Institute's Sound Partners program and the Sound Art program of Los Angeles. For more information and photos, please visit www.mixfoundation.org.



Eddie Money practices his putting.



First-time participants, The Document Room, finishes in third place.



(L-R) Mr. Bonzai, Record Plant president Rose Mann Cherney, honorary chairman/engineer/producer Ed Cherney and musician/composer/producer CJ Vanston



L-R: Mix L.A. Open honorary chairman Ed Cherney, Mix Foundation president Hillel Resner, P&E Wing executive director Maureen Droney, Remote Recording president Karen Brinton and The Village CEO Jeff Greenberg



Mike Franklin (left) and Andrew Wild from Euphonix



The Village team—(L-R) Len Kay, Chris Rossasen, Charlie Bidwell and Cort McCown—took home first place.



On the course with (from left) P&E Wing team members Steve Genowick, Al Schmitt, CJ Vanston and Jimmy Mitchell



Quantegy's Mike Porter (left) and Joshua Herron with their Black Diamond External Hard Drive and Ed Cherney



Greg Ladanyi (left) with Al Schmitt



Second-place finishers (L-R): Brian Edelman, Charlie MacDonald, Chuck Cherney and Ed Cherney, with the ladies from Pin-Up Golf and Mix Foundation president Hillel Resner

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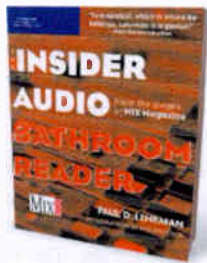
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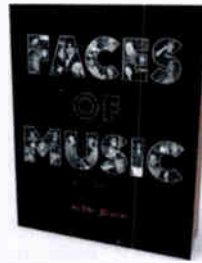
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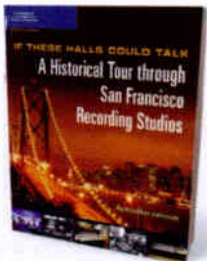


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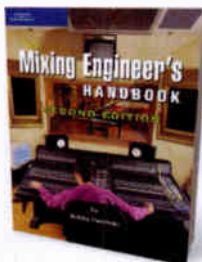
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L.A. GRAPEVINE

by Bud Scoppa

At Radio Recorders, located on the corner of Santa Monica Boulevard and Orange Avenue, an ongoing effort is underway to restore the oldest studio in Hollywood—the birthplace of Bobby Darin's "Mack the Knife," Sam Cooke's "You Send Me," the Beach Boys' "Help Me, Rhonda," Bing Crosby's "White Christmas" and Elvis Presley's early RCA sides—to its former glory. Clearly, this is an ambitious undertaking, as the operation

requisite Neve console (a VRP60) in Studio A, turning Studio B into a Pro Tools suite with a Sony DMX-R100, putting a cherried-out Trident MTA-90 in C and setting up the cavernous Studio E, where all of the above-mentioned classics had been recorded, as well as a soundstage for video shoots and live recordings. The partners refaced the walls and floors, being careful not to tamper with the details that make the facility unique, and brought in their ample collections of vintage gear.

Gradually, clients started to appear, and Radio Recorders got its first high-profile customer with Lucinda Williams, who had her 2004 live album mixed there and then returned to track her next studio album. Meanwhile, Dumas and Hutchison used the studio for their own projects, including the sessions for Yoakam's upcoming album and a number of projects for Hutchison's Explosive Records, most notably the debut LP of alt country newcomer TJ McFarland and a pair from Chambers Brothers' frontman, Lester Chambers.

"We're all here for the music," says Hutchison, who moves at double speed through the hall, his optimism infecting everyone in the building. "I'm all about John Lennon, Bob Marley—keeping the spirit alive." From the spring in his step and the sparkle in his eyes, you can't help but believe that these guys are going to do just that.

One longtime Hollywood studio owner who decided the grass was greener on the other side of the Cahuenga Pass is Marc Graue. He moved his Marc Graue Voiceover Studios from a seedy section of East Hollywood Boulevard that was not especially attractive to high-end clients to a two-story brick building in a quiet Burbank neighborhood. The move happened around the same time as the Radio Recorders reclamation project was getting under way.

The affable, dulcet-toned Graue, who began his career in radio, has many more competitors these days than he did 25 years

—CONTINUED ON PAGE 178

NASHVILLE SKYLINE

by Rick Clark

Whenever I bop over to East Nashville, I invariably end up at the local coffee shop hang called Bongo Java. It is probably the best place to meet some of the most interesting and intelligent creative folks in town. It was there that I met Warren Pash, a gifted songwriter, artist and producer, and also one of those discriminating listeners who loves to hear a good song. The first time I dragged Pash over to my office and played him some tracks, it was clear that he's a pull-no-punches kind of guy and someone I can count on for thoughtful and instinctive feedback.

Pash rolled into Nashville in 2000 from Portland, Ore. His music career began in 1978, when, as a kid from Montreal, he bought a one-way plane ticket to L.A. Three years later, he found success as a songwriter with Number One hit "Private Eyes," recorded by Hall & Oates. Pash began co-writing with the likes of Gerry Goffin, Carole King, Alan Gordon ("Happy Together"), Dan Hill and even Bryan Adams, who showed up unannounced at his front door one day to write a song. As a musician and artist, Pash has shared the stage with The Pixies, Roger McGuinn, Lucinda Williams, The Waterboys, Todd Rundgren and The Mekons, and he's even played bass for R&B legends Screamin' Jay Hawkins and Rosco Gordon.

Recently, during a night of listening to good music, Pash wowed me with a preview of two labor-of-love projects he's been working on: a solo album titled *Plastic Rulers* and an album by singer/songwriter Tupper Saussy called *Chocolate Orchid Piano Bar*.

Pash started by playing *Plastic Rulers'* song "Child's Play"; it's a perfect slice of guitar-driven Anglo pop/rock—part Tom Petty, part Big Star, with clever descending bass lines, a taut string section and rock-solid drums. Pash paints a scene rife with apocalyptic images that are only "child's play" as compared to what's evidently coming down the line. Well, it was love at first listen. I started listening to the album from the top, and it's a gem.

Plastic Rulers was largely recorded in



Dwight Yoakam looks on as L.A. City Councilmember Tom LaBonge unveils Radio Recorders' landmark plaque

attempts to compete with the numerous nearby high-profile facilities. On one side of the nicely landscaped entrance to the building, which was built by RCA Victor in 1928, a recently erected sign denotes Radio Recorders' status as a historic landmark; on the other, a homeless person sleeps on a bus stop bench—the contrast is a microcosm of the challenge facing partners Paul Schwartz (who has operated the studio for the past two decades), Michael Dumas and Pride Hutchison.

Drummer/producer Hutchison and Dumas, who has done Dwight Yoakam's live sound for years, were scouting studios to work in when they came upon the building, then called Studio 56, and offered to enter into a partnership with Schwartz, who welcomed the infusion of cash, energy and vision. They new co-owners began the renovation in 2000, installing the

NEW YORK METRO

by David Weiss

a home studio in East Nashville on an MCI 2-inch at 15 ips. Additional tracking and overdubs were done at Sound Emporium, Sound Stage and Sheryl Crow's Talent Shop studio (all in Nashville). The album was mixed by Eli "Lij" Shaw at his studio, where Pash cut most of the basic tracks. It was mastered by Eric Conn and Don Cobb at Independent Mastering on 1/4-inch at 15 ips.

After we listened to Pash's album that night, he began excitedly telling me about his work with Tupper Saussy and his crusade to make people aware of his work. Tupper Saussy is one of those names that is hard to forget once you hear it, but I had trouble placing it until Pash asked me if I remembered Saussy's group called the Neon Philharmonic, which scored with "Morning Girl," a late-'60s baroque-pop hit that sounded anything but Nashville. In fact, most of the Nashville music community knew little to nothing about Saussy—and they still don't. When the single and the album, *The Moth Confesses*, was announced at the NARAS Nashville chapter's Grammy Awards ceremony in 1969, Saussy recalls they "got a sprinkling of polite applause." If Saussy had been living in L.A., he would

—CONTINUED ON PAGE 178

The technical importance of having a great console in a control room has arguably shifted in the past several years, but the emotional significance has not. Special mixing desks have the power to inspire, and in the hands of the right engineer, can take a tracking or mix session to a place that a DAW alone just can't. New York City is home to some of the most intriguing fader-equipped mechanisms.

Located in a historic vaudeville theater in the Lower East Side, The Space makes a big impression even before you reach the Augspurger-equipped control room, thanks to its 60-foot (four-story) ceilings and old-school-meets-new-school vibe. Inside the command center, clients can't help but get excited to start mixing on owner Guy Benny's Acoustilog GB-1 console. Designed by the renowned Al Firestein, the 32/62-channel remix board wraps around the mix position in a subtle triangular arc, giving the mixer ergonomically excellent access to a wide array of distinctive features.

"I wanted something that was either an industry standard or something completely different that didn't sound like anything else," Benny says. "This Acoustilog was built in 1972, and is a blend of an API, Helios and Harrison. Like any Neve board, there's tremendous sending potential, GML-type automation, with master faders that are VCA and mini-faders that are not."

While the board's sonics and API-style EQs pave the way for electrifying mixes, it also has many advanced features; most eye-catching is the "Spectrum Multilyzer" plasma metering, which turns the meter bridge into an instant source of very visible spectrum analysis. It's all part of a board you just want to be with. "With a unique board, you can get a straight sound, or just engage it a little more and define the mix in another way," Benny notes. "This Acoustilog lets you tailor a different mix that you wouldn't necessarily be able to get in other ways or places."



The Space's Guy Benny (left) and Walker Pettibone

Excello Recording is home to a spacious and airy live room on one side of the glass and a tank-like Calrec Series B 40x16x18 console on the other. Built exclusively for the BBC, the board is one of only four of its type ever constructed, and it was used to broadcast and record from London's Royal Albert Hall from 1990 to 1999. Put into retirement by the Brits, it has since found a most appreciative fan club in Brooklyn.

"The BBC wanted a console with what you want, too," says Excello partner/engineer Hugh Pool. "Low distortion, loud and clean with tons of headroom. All of the output cards have hand-wired Lindahl transformers, and the weight when you pull them out is amazing—approximately six ounces per board." Although Excello initially sought a Neve or API to complement its wealth of vintage gear (including an equally notable Neve 12x4 1063 sidecar), the studio and its clientele have fallen in love with the Calrec's extreme flexibility and ultra-low noise.

In the August 2006 issue of *Mix*, Gary Eskow wrote an article about Room 309 at Sony Music Studios, an outstanding mix facility that may soon be officially renamed The Dave Smith Room after its brilliant designer, who passed away in June. The surround-capable room is attracting its share of followers, many of whom return

—CONTINUED ON PAGE 178

PHOTO: RICK CLARK



Warren Pash—songwriter, recording artist, producer, coffee drinker—is currently working on two labors-of-love.

BEHIND THE GLASS

RECOMBINANT MEDIA LABS PUSHING BOUNDARIES OF AUDIO AND VISUAL SURROUND

"We're cultivating methodologies for an A/V institute of experiential engineering," says Recombinant Media Labs (<http://recombinantmedia.net/>) founder and conductor Naut Humon. Lofty words to be sure, yet this is an entirely fitting description of the work happening in this San Francisco audio/visual production and research facility.

Humon is known in many circles as an "inter-media" pioneer through decades of work with projects such as the electronic ensemble Rhythm and Noise and the abstract audio group Cellar M. However, he found even earlier career success creating immersive multimedia theater projects such as "audience mobilization and abduction events," in which observers were transported through custom-constructed indoor and outdoor locations. These '70s and '80s experiments led to the '90s presentation of the "Sound Traffic Control" project, which depicted the metaphor of a virtual sonic "airport" where various music cargo would land, taxi and take off from an imaginary runway filled by roaming audience "passengers" amid dynamic audio trajectories. This "immersive orchestral" concept was realized in a 1991 Tokyo spectacle, complete with a symphony of 800 speakers and a corroded air traffic control tower. This "Recombinant" event toured the international festival circuit and featured many of the artists on the Asphodel Records label founded by Humon's partner, Mitzi Johnson; Johnson and Humon later installed a permanent performance and exhibition arts center in San Francisco dedicated to the exploration of spatial media synthesis through an elaborate multichannel surround cinema environment.

"Our emphasis is to build a bridge between the cultural, commercial and educational worlds," explains Humon. On the "conventional" side of things, Asphodel Studios features a hot-rodded Neve VR-72 with Flying Faders, a 48-channel Pro Tools HD Accel system with Apogee converters, PMC and Dynaudio monitoring, an extensive plug-in collection and a host of outboard gear from Manley, Crane Song, GML, Pendulum, Lexicon, Universal Audio and others. There's also a lavishly equipped video editing suite and a modular analog and software synthesizer chamber. "Those rooms work well for clients, advancing recording, mixing and audio to image soundtracks or gaming DVD possibilities beyond the realm of the popular home or public studio market," says Humon, who cites as an example a recent undertaking with

Lou Reed overseeing the mix of German ensemble Zeitkratzer's arrangement of Reed's 1975 landmark noise album *Metal Music Machine* for live strings, brass and strummed piano interiors.

At Humon's facility, that would be on the traditional side. Down the hall, a large, flexible black box theater venue houses a full-fidelity



Above: *Surround Traffic Control*; left: Naut Humon

16.8.2-channel L-Acoustics P.A. array and a high-definition 10-screen Optima video projection system that displays panoramas up to 360

degrees. This configuration constitutes a rectangular room specification for the updated *Surround Traffic Control* cinesonic system.

Humon describes RML's surround model as a "hybrid of different spatial techniques," ranging from traditional vector-based panning to targeting spherical harmonics and phase relationships via Ambisonics soundfield resynthesis technologies. One example of these immersive modes is wavefield synthesis, which uses clusters of speakers that pixelate a localized "periphonic image." So what does all this spatial media synthesis mean to the observer? Put simply, the ultimate surround cinematic experience.

"In most film theaters, you have various setups of speakers; usually it's 5.1 or 7.1 along with a single large screen," explains Humon. "We've expanded ours out to be a scalable format for up to 16 channels going around the room, where there's a cubic formation featuring eight speakers in a circle above the screens and eight below to permit 3-D X, Y and Z audio trajectories for horizontal, vertical and diagonally directed sound." Thirty-two additional transducers under the carpeted floor deal with the vibration of bass as a discrete element, along with an extra 8.2 channels for sculpting multiple mono and stereo crossovers for infra-bass. Max MSP, Supercollider, PD and Kyma platforms are also used to write custom spatial DSP software, including Immersive Media Research (<http://im-research.com>).

To some, RML's *Surround Traffic Control* matrix might seem esoteric, but Humon visualizes mass-market potential. "We're blessed to be working with vast resources and abilities, but we don't want this to become a place of technological exposition," he insists. "This lab exists for the purpose of creating aesthetic concepts and content that become the substance of the great music and visual experiences that we will remember in our lives. If the global artists in residency here can paint their open canvas with some fresher tools and transfer and scale these performances to other venues and festivals, we can help to inspire those who will dare to build similar sites with our architectural models."

—Sarah Jones



The Neve VR-72 in Studio A

THE ANNEX JAZZ LEGENDS GATHER 'ROUND SCOTT



Front, from left: Lucien Dobat, Plas Johnson, Rhoda Scott, Red Holloway, Carl Lockett. Behind the board: producer Pete Falico (left) and Annex engineer Russell Bond.

emerged during a lunch break. Also sitting in were Scott's longtime drummer, Lucien Dobat, and Bay Area jazz guitarist Carl Lockett (Chuck Mangione, Jimmy Smith). The CD, *From C to Shining C*, is available from CDBaby.

SF SOUNDWORKS BRINGING THE MUSIC BACK HOME



At SF Soundworks: Marco Moreno of Modderato, Laredano Crisan of SF Soundworks and mixing engineer Joe Chiccarelli

artist Subtle in collaboration with Sub Pop's Wolf Parade; Aaron Dematteo engineering an upcoming Harold Budd album with producer Robin Guthrie (Cocteau Twins); Loredana Palomares helping Sound Tribe Sector 9 track an upcoming release; and Joe Chiccarelli mixing Australian recording artist Kara Grainger and the session with Modderato (pictured above).

American-born jazz keyboardist Rhoda Scott has lived in France for 30 years, but her recent tour took her through Northern California, and included time out for a recording session in Studio A at The Annex (Menlo Park, Calif.; www.theannex.us). Producer Pete Falico arranged for Scott to play her B3 with an impressive "pickup band" that included saxophone players Red Holloway (Lionel Hampton, Billie Holiday, Sonny Rollins, Dizzy Gillespie) and Plas Johnson (Henry Mancini, Frank Sinatra, Nat King Cole, Barbra Streisand). Each of these stellar horn players contributed an original composition to the project. Holloway's "Waitin' for the Plane" was written en route to the gig; Johnson's "Reveries"

High-end, three-room facility SF Soundworks (San Francisco, www.sfsoundworks.com) is making good on its motto: "Bringing the music back to San Francisco." "We're expanding our guest suite and have had projects in from all over," says resident producer/mixer Tony Espinoza. "Just in the last month, we've had folks in from Australia, Nova Scotia, L.A., Nashville and Boston." Soundworks comprises Studio 1 with its SSL 9072 J console, a 9000 J equipped Studio 2 and Studio 3, a Digidesign ProControl-based indie suite. Recent projects include Espinoza mixing a single by EMI

TINY TELEPHONE



At Tiny Telephone, engineer Alex Newport (left) with Two Gallants: Adom Stephens (center) and Tyson Vogel

Recent sessions at John Vanderslice's Neve 5316-centered indie Mecca, Tiny Telephone (San Francisco, www.tinytelephone.com), include local Saddle Creek Records rock 'n' roll band Two Gallants, mixing with engineer Alex Newport. In addition to the hard-working Gallants, recent visitors have included Anti artist Jolie Holland with engineer Justin Phelps, and Sam I Am with producer Chris Moore.

BLUE SEVEN AUDIO

Christopher Scott Cooper has spent 10 years engineering at The Annex, but he also runs his own project room in the East Bay. Blue Seven Audio (Fremont, Calif.; www.bluesevenaudio.com) is equipped with a 56-channel DDA DMR-12 console, Audix 1A and Dynaudio BM-15A monitoring, and requisite Pro Tools setup (HD 3 and MIX|24). This summer, Cooper was busy mixing/co-producing Genre Peak's latest electronica CD, *Ends of the Earth*, engineering/co-producing prog rockers Metaphor and mastering the debut by S.F. indie band Needle.

BROKEN RADIO



Greg Barnett, Matt Boudreau and Ricky Carter

Engineer/producer/mixer Matt Boudreau's Broken Radio studio (Emeryville, Calif.; www.brokenradio.com) features a 1980s-built Trident Series 16/24 console and Pro Tools HD 3 Accel system. Boudreau's long list of local clients includes numerous local bands and solo artists, including former *Cirque du Soleil* guitarist Greg Barnett, who was in to track drums for his upcoming release.

ago, when he started a voice-over operation at the old Cherokee on Fairfax Avenue. Nonetheless, the facility's four rooms and video suite are teeming with virtually nonstop activity. According to Graue, the studio is doing so well because of competitive pricing, a comfortable environment ("It's like owning a bar," he says. "People feel at ease here.") and, most of all, a flawless product, professionally delivered.

At Graue's joint, the bulk of activity takes place between the civilized hours of 9 and 5, with an extremely diverse clientele, including "suits coming in from Wilshire Boulevard, a lot of celeb stuff—in 45 minutes we're doing the DVD commentary for another *Simpsons* release—voice-over demos for people wanting to get into the business, narration for A&E's *Biography*, ADR for the BBC—like what's happening in Studio 4—Disney and MTV cartoons, commercial radio stuff. It stays pretty busy."

In this sector of the biz, mic selection is crucial. "A lot of the time, we find ourselves using Sennheiser 416s, which are shotguns, especially for movie trailers, promos, that kind of stuff," Graue explains. "We have a full collection: AKGs to Neumanns. But with most of our clientele, the gear is not as important as what they get. Studiowise, we have no live surfaces at all—very dead. If you walk in the booth, you can almost hear your blood, because all you want is that voice right in your face. Most of our stuff is pretty direct—high-end mic pre's going into Pro Tools, and then a gazillion plug-ins after the fact. The bottom line is, when you hear the finished product on the radio or TV, it's gotta be, 'Damn, that's clean!'"

Another aspect of onrushing technology that has dramatically impacted the VO business is the Internet. "Now we post entire TV shows on FTP sites," the studio veteran points out. "It's amazing how many clients we have and have a great rapport with that we've never even met in person. Most of the successful voice-over guys have home studios, which is why you don't see anybody at the mic in the session that's going on in Studio A right now. We now have 10 ISDN lines because it's that busy. Plus, we're getting more and more huge QuickTime files. We're running beefy G5 duals in all of the studios with 6 to 8 gigs of RAM, so they're real fast."

So is the business as a whole, which is hourly in nature and cut to extremely close tolerances. "It's a very quick-paced job," Graue says, "and you need to be able to think on your feet." ■

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have been received with the kind of respect accorded to someone like Van Dyke Parks.

"We were virtually unknown outside the players we'd used on the sessions and the people at Acuff-Rose [publishing]," says Saussy. "I never sensed that I was part of mainstream Nashville music. I'm really an outsider; as soon as I feel I'm inside a group of anything, I have to break out."

Before the Neon Philharmonic, Saussy's work in Nashville was primarily in jazz: His earliest compositions were featured on two early '60s albums of jazz piano he recorded for Monument Records. He was also commissioned to compose two large orchestral works for the Nashville Symphony Orchestra. His career as songwriter for Acuff-Rose (Sony ATV) resulted in recordings by Brenda Lee, Perry Como, Al Hirt, Patti Page, Floyd Cramer, Chet Atkins and Ray Stevens.

Fast-forward to 2005, when Pash happened upon an old 45 of Neon Philharmonic's "Morning Girl" in the East Nashville Salvation Army thrift store and was blown away. Six months later, Pash was introduced to Saussy at a dinner party at producer Fred Mollin's house and the two clicked.

What was initially to be a Neon Philharmonic tribute CD quickly evolved into an album concept Saussy had conceived in 1975, called *The Chocolate Orchid Piano Bar*, featuring just Saussy at the piano—no other players. Pash and Saussy used the "Liberace Baldwin" in David Briggs' studio, House of David, and Ronnie Milsap's Yamaha at Groundstar Universal.

A self-professed "analog guy," Pash wanted sounds such as the damper hitting strings and pedal thumps to be preserved to enhance the authenticity of the performance. "Unlike the Memorex commercial, where the guy hanging on to his chair is being pushed away, we wanted to draw people in," explains Pash. "To draw them in, Tupper might play a soft passage that conveys a vulnerability or sensitivity, and when he sings, there are those moments where the listener might wonder if Tupper's voice will really reach that high note, and when he hits it, they say, 'Wow!' We want the listener involved, rather than impressed."

"One of the joys of making this record was watching Tupper cut nine songs in one day, five songs in another day," concludes Pash. "These are great performances. It made me think of how producers like Rudy Van Gelder and Tom Dowd must have felt producing those great performance-driven records back in the '50s and '60s." ■

Send Nashville news to mrblurge@mac.com.

for Smith's hand-built, 36-input, 12-bus Massenburg GML console with Flying Faders running on Neve Encore Automation. "This console is unlike any I've ever heard," says Joe Ferla, one of the most in-demand jazz and rock mixers working today (John Mayer Trio, Bill Frisell, Geoff Keezer). "It has nothing in it: a fader, pan pot and some aux sends. That's the console—no EQs, no dynamics. The signal path is so clean and short that the console's sound is huge."

There are a thousand Neves in the naked city, and one had to squeak through into this article. Among my personal favorites is the one at Stratosphere Sound, where a bodacious 1979 Neve 8068 Mk II 32-input console with GML automation resides, modified by Dan Zelman to have 64 returns. Like the studio's owners, which include Fountains of Wayne's Adam Schlesinger and former Smashing Pumpkins guitarist James Iha, the board is at once old-school and as hip as they come.

"The Neve bridges the gap between big studios and home studios," explains Stratosphere chief engineer Geoff Sanoff. "The current process of music creation has provided a democratization for clients who may not do the entire project at our studio, but do have a need for what we provide at some stage." In addition to modifications for increased flexibility, Zelman's efforts launch the sonics of Stratosphere's Neve into the—well, you know. "It sounds great; it's a really punchy-sounding console," says Sanoff. "When it was recapped, it got back a lot more of its clarity and zing. People think of Neves as being dark and warm; I'd say this console is warm, but not dark. It's not bright like an SSL, but it's a really live-sounding console that breathes nice and wide."

No list like this would be complete without the hand-built, wood-appointed desk that resides in one of the most unforgettable rooms in New York City: Studio C at Sear Sound. Looking out onto the natural light, plants and hundreds of microphones that comprise the 11,500-square-foot live room, the custom-designed, Class-A, 60-input console with Flying Faders and Avalon EQs translates sound faithfully.

"It's quite flexible, with 24 buses if you need that many, but always direct," says owner Walter Sear. "A console is a big lump in the middle of the room that splits it acoustically. If the musicians don't play musically, then nothing in the control room is going to fix it. So the key is actually to get a good performance." What a concept! ■

This is the first in a series on consoles, so let me know why your board should be featured next by e-mailing david@dwords.com.

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The essential Pro Tools HD software upgrade for mixing and post professionals

—FROM PAGE 24, SURROUNDING THE AUDIENCE

Dolby, ABC developed a high-rate version of Dolby Digital that runs at 640 kbps as opposed to 384. The high data rate allows more encode/decode stages with less signal degradation. "It's not necessarily the perfect solution," says Hilson, "but it was a way for them to get on the air with 5.1. And the difference is pretty hard to tell, unless you had the original audio to compare it with."

ESPN, which like ABC is owned by Disney, also doesn't use Dolby E. (Recently, ABC dissolved its remote operations unit and turned everything over to ESPN.) To get the audio from ESPN's trucks to the network, the network uses a completely different method of encoding: SRS Labs' Circle Surround matrix encoding. In fact, Scalise's original system for delivering surround used SRS' technology for the entire signal chain—from truck to living room. "It was the simplest way to transport the audio and still be compatible," he says. "It can be decoded with Circle Surround II and with Dolby Pro Logic II, as well as Neural Audio's decoder. It's a stereo signal until it's told not to be by a decoder."

"The SRS system does a little moving of stereo cues from front to rear and vice versa, so you don't get holes in the surround field," Scalise continues. "The more separation there is between the left and right channels, the more it gets sent to the rear. Things in the front channels with reverb or echo effects extend to the rear. Even though we're building the sound design for surround, the music we use is all delivered in stereo, so the music will envelop the user and blend in better with the overall mix. In effect, the decoder is up-mixing it. For example, instruments recorded in stereo or elements like overhead drum mics will be all around you, while the snare in mono will be in the front. Is it true to life, is it the way they recorded it? No. But does it add to the 'wow' factor? Yes."

It also explains why no one—like the sponsor—complains when a stereo commercial is played in the middle of a surround sports broadcast. The Circle Surround system makes sure there's interesting content in the surround channels even when there was none to begin with. At the network, the Circle Surround gets decoded to 5.1 and then re-encoded to Dolby Digital. The metadata in the stream is inserted at the network.

For ESPN, the priority is to make sure the affiliates—which, in its case, means cable head-ends—have to worry as little as possible about the signal. Because there are tens of thousands of head-ends among the network's subscribers, and some large systems themselves have as many as 40 "virtual" head-ends, allowing each cable company to

decode and re-encode the signal is just asking for trouble, not to mention that the hardware cost would be huge. So after experimenting for a year using SRS in the whole chain, ESPN switched over and now—like other cable networks that do surround, such as HBO and Showtime—sends the same 384kbps Dolby Digital audio stream over its ASIs that the cable systems send their customers. Thus, when the signal is turned around at a cable head-end or by a DIRECTV transmitter, it doesn't require any audio conversion.

All of what I've talked about so far has to do with HD broadcasts. But the great majority of television viewers in the U.S. are still watching in standard definition (SD), and SD has no standard for encoding surround audio. Not surprisingly, different networks use different methods. And where there are multiple surround formats, there are going to be different ways of approaching the stereo mix.

"Some mixers do a totally separate stereo mix off the desk," says Adler, "or they'll use a Dolby 563 digital encoder to fold it into Pro Logic II, which can be listened to in either surround or stereo, or they'll use a Dolby 570 monitoring tool to downmix it." When Adler is at a game, he'll generate a separate stereo feed, but, "it's not really two mixes since the balances are the same," he says. "I just use left-front, right-front and center. I don't bother to put the surround channels into it because it's mostly crowd."

Despite the excellent technology and the best efforts of the network engineers and mixers, there are still many potential pitfalls. "If it's done right, from conception to reception," says Adler, "multichannel sound can be very effective. But there's an awful lot that can go wrong, which is not in our control as mixers. If it leaves the network okay, you have stations broadcasting in both SD and HD during the course of the day, and sometimes their equipment isn't working right to switch from stereo to surround, or they don't have the equipment, or they forget to push the right buttons. So they end up broadcasting only channels 1 and 2—which are left-front, right-front—but not channel 3, which is the center, and now you've lost the announcer."

"Until last year," Adler continues, "all NFL games on CBS were sent on SD with surround audio matrix-encoded in Dolby Pro Logic. But they were getting a lot of complaints from the affiliates related to this—people not hearing the announcers and other problems—so they pulled the encoders out, and now they claim all the complaints went away."

Says Scalise, "We send SD down-converted from the HD signal. When that left-total/

right-total [Lt/Rt] matrixed signal comes back, before it gets decoded, it branches off to the SD feed. That's where most of the problems lie: Maybe the cable system is sending it out in mono or maybe they have something out of phase. Each transmission channel has its own receiver, and we have to hope that every one of those receivers is set up properly. If they do something wrong, it can take a perfectly good stereo channel and put it out of phase, so your dialog goes away."

"We're more successful on the HD side—it just passes right through and there's not much they can do to it," Scalise continues. "Then the only issue is what the guy at home does. Some receivers have bells and whistles that don't necessarily do right by surround or even stereo signals. The worst we've seen is some TV sets with stereo enhancers; sometimes to push the channels out, they leave a void in the middle."

"The only *really* safe thing to send out is mono—you can't screw that up, except someone will turn the bass all the way up and the treble all the way down, and complain he can't understand what the announcer is saying. We do handle complaints, and sometimes have a task force that goes out to a particular market and solves the problem. It's all for our own benefit."

According to Adler, "There are a bunch of guys—hobbyists and pros—who are really into this thing on the 'AVS' forum, and they'll talk about the programs as they're on the air. Sometimes they'll talk about the game, but also about sound and picture quality. It's a small group, but my bosses read that stuff, so we have to pay attention."

"When everyone gets onboard with digital transmission [which the government has now mandated for February 17, 2009, the day all analog television transmission in the U.S. will stop], maybe the problems will all go away. But right now, you're getting a mishmash; it's a real mess."

As I was finishing this two-part series, an item in the local newspaper caught my eye: Smaller college sports conferences—the Ivy League, for example—are moving away from network and even cable coverage of their games as the sponsors are becoming increasingly interested only in the bigger schools and conferences. So what are they doing? They're moving to Webcasts. What are they going to sound like? One can only imagine. ■

Paul Lebrman's anthology of his columns for Mix and other essays and a few jokes, The Insider Audio Bathroom Reader, is now available from your favorite neighborhood and online bookstore, and the Mix Bookshelf.

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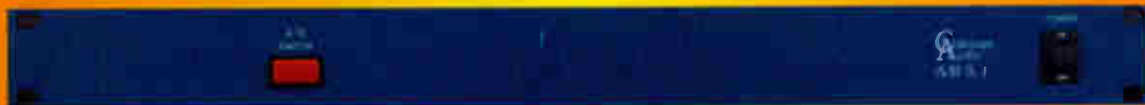


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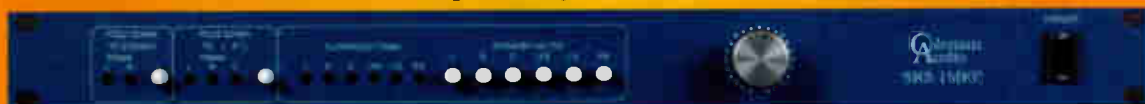
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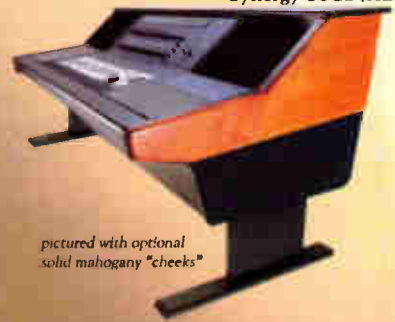
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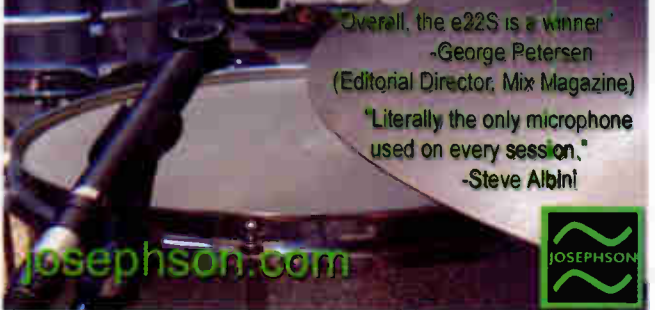
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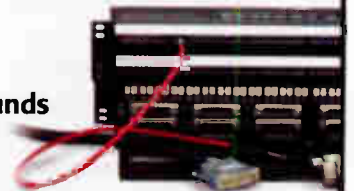
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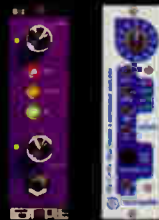
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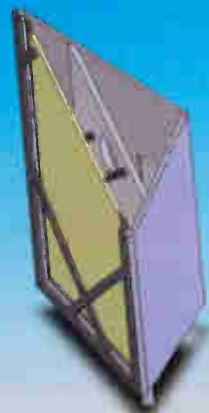


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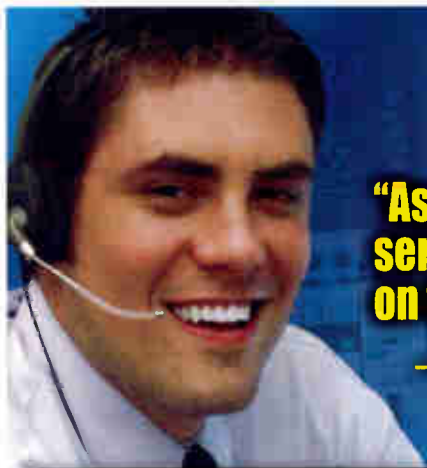
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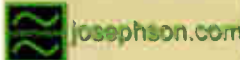
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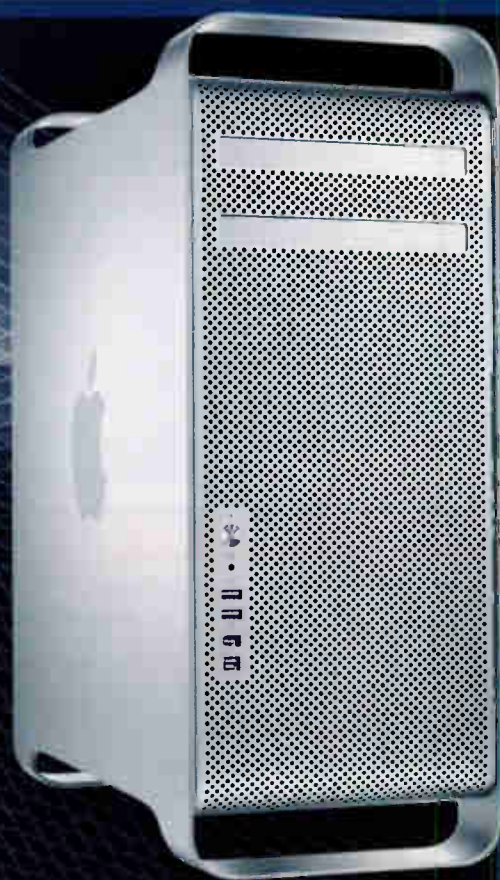
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Bus powered Firewire I/O

The ultra convenient **MOTU UltraLite** connects quickly to your Intel Mac Pro or MacBook and instantly delivers 10 inputs and 14 outputs, including two mic / line / instrument inputs with pristine preamps. Mix and match condenser and dynamic mics with individual 48V phantom power, 20 dB pad and Precision Digital Trim™. The UltraLite is the only interface of its kind to offer complete seven-segment front panel metering for all inputs, plus full front-panel LCD programming. The LCD also gives you full access to the UltraLite's 8x20 CueMix DSP mixer, which can also be controlled from the convenient CueMix Console software for PC and Mac. The UltraLite is a sturdy all-around interface with ASIO, WDM, Wave, GSIF, Core Audio, and Core MIDI drivers and support for all popular Macintosh and PC audio software. Mix and match the UltraLite with other MOTU interfaces as your studio needs grow.



Waves native processing

With 24 State-of-the-art sound processors, **Waves Gold Bundle** is a comprehensive set of audio processing tools for DP5. Now fully compatible with the new Intel-Based Macs, the **Waves Gold Bundle** is bigger and better than ever, including IR-L Convolution Reverb, Waves Tune LT, Doubler, and RenAxx. IR-L Convolution Reverb: The world's best rooms at your fingertips. Grand Ole Opry. Sydney Opera House. Birdland. Trinity Church. Want to record in the world's greatest venues? Now you can. IR-L puts the meticulously captured sound of these and many other renowned spaces and hardware devices in your hands. Waves Tune LT: Advanced dynamic pitch correction with formant correction, natural vibrato detection, MIDI and ReWire compatibility, and ultra-powerful real-time editing capabilities. Doubler: Fat tracks with richness and texture. RenAxx: The ultimate compressor for guitar. For tracking, mixing, and mastering, the Gold Bundle is an ideal DP5 companion.



The MOTU experts at Sweetwater can put together the perfect intel DP5 rig for you. We'll help you select the right components to build a system that seamlessly integrates into your workflow, and we can even install, configure and test the entire system for you. Why shop anywhere else?

Legendary drummers

Submersible Music delivers access to twelve world-class drummers, such as Terry Bozzio, Matt Sorum, Sly Dunbar and Zoro. The perfect tool for songwriters and composers who need drums quickly in a multitude of styles. Features include an Audio and MIDI librarian (quickly find that perfect groove), "GrooveSets" (for easier songwriting), MIDI instrument (loaded with each drummer's MIDI drumkits) and the "Gabielerizer" (groove generator). Simply drag-and-drop from Drumcore to your Digital Performer 5 tracks or Clippings window.



Exquisite grand pianos

Synthogy's Ivory set a soaring new standard for virtual pianos. Now, you can expand Ivory's three-piano repertoire with the **Italian Grand expansion pack**, a 16 GB, 12 velocity masterpiece of exquisite playability. Load up the Italian Grand, and Ivory becomes far and away the most powerful virtual piano for Digital Performer 5. Once you lay your hands on Ivory, you'll agree with the pros at Sweetwater: "Ivory isn't just a virtual instrument... it's an experience."



Advanced waveform editing

Your DP mastering and processing lab awaits you: **BIAS Peak Pro 5** delivers award winning editing and sound design tools, plus the world's very best native mastering solution for Mac OS X. With advanced playlisting. Superb final-stage processing. Disc burning. Plus PQ subcodes, DDP export (optional add on), and other 100% Redbook-compliant features. Need even more power? Check out our Peak Pro XT 5 bundle with over \$1,000 worth of additional tools, including our acclaimed SoundSoap Pro, SoundSoap 2 (noise reduction and restoration), Sqweez-3 & 5 (linear phase multiband compression/ limiter/upward expander), Reveal (precision analysis suite), PitchCraft (super natural pitch correction/ transformation), Repli-Q (linear phase EQ matching), SuperFreq (4, 6, 8, & 10 band parametric EQ) and GateEx (advanced noise gate with downward expander) — all at an amazing price. So, when you're ready to master, Peak Pro 5 has everything you need. It's the perfect complement — and finishing touch — to Digital Performer 5.

Universal plug-in control

As a Universal Sound Platform, **Native Instruments KORE** operates not only as a plug-in within Digital Performer but also as an instrument host application. It allows you to integrate all your VST- and Audio Units-based software instruments and effects into a single, unified interface. KORE provides greatly increased control, overview and ease of use in all creative situations. Both Native Instrument's own range of instruments and effects as well as third-party products are supported. The seamless integration with KORE's advanced hardware controller gives hands-on control with unprecedented analog feel, finally turning today's software synthesizers and samplers from applications into true instruments.



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Advanced compact controller

Digital Performer 5 gives you unprecedented control over your MIDI and audio tracks. And what better way to take advantage of this hands-on control than the new M-Audio **Axiom 25**, which kicks off the more advanced Axiom line of MIDI controllers. Built around an even more rugged chassis, the Axiom 25 includes 25 semi-weighted velocity-sensitive keys with assignable aftertouch, eight MIDI trigger pads, six reassignable transport buttons, 20 non-volatile memory locations and more. And if you need more keys and controller options, the 49-key **Axiom 49** and the 61-key **Axiom 61** complete the new line. Don't let the compact size of the Axiom 25 fool you. This advanced 25-key USB mobile MIDI controller features both semi-weighted action and assignable aftertouch, plus eight rubberized trigger pads that put digital programming and performance at your fingertips.



Rich Lexicon reverbs with plug-in convenience

Lexicon is noted for reverbs, and now the new **MX400XL** and **MX400** dual stereo/surround reverb processors bring that classic Lexicon sound to your MOTU desktop studio, without the taxing CPU overhead associated with high-end software-only reverb plug-ins. The new single-rackspace, 4-in, 4-out MX400 combines an intuitive front-panel design with Lexicon's "Hardware Plug-in" technology,

a unique USB connection and AU plug-in interface that lets you control and save your Digital Performer projects directly from within your Digital Performer projects, just like your other plug-ins, while offloading the intensive reverb processing to the MX400 hardware. Featuring a wide array of rich, complex reverb algorithms, delays, effects and dbx dynamics, the MX400 series also offers

4-channel surround algorithms that dovetail perfectly with Digital Performer's state-of-the-art surround mixing. A 4-in, 4-out design, the MX400 series offer pro connectivity through XLR balanced I/O (MX400XL), or TRS I/O (MX400). Both products also offer. In any application, the MX400 series products provide versatility and sound that is unmistakably Lexicon.



Control room monitoring

The PreSonus **Central Station** is the missing link between your MOTU recording interface, studio monitors, input sources and the artist. Featuring 5 sets of stereo inputs (3 analog and 2 digital with 192kHz D/A conversion), the Central Station allows you to switch between 3 different sets of studio monitor outputs while maintaining a purely passive signal path. The main path uses two amplifier stages including op amps, active IC's or chips. This eliminates coloration, noise and distortion, enabling you to hear your mixes more clearly and minimize ear fatigue. In addition, the Central Station features a

complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied for flawless visual metering of levels both in dBu and dBfs mode. Communicate with the artist via talkback. Send a headphone mix to the artist while listening to the main mix in the control room and more. The Central Station brings all of your inputs and outputs together to work in harmony to enhance the creative process and ease mixing and music production.



Power conditioning

A large-scale MOTU-based multitrack studio is not only a finely-tuned instrument, it's an investment. Protect that investment — and get the best possible performance from it — with the **Monster Pro 1500** and **Pro 2500 PowerConditioner**. Many so-called "power conditioners" only protect against random power surges and/or voltage spikes. But AC power line noise and noise from other components is an equally harmful and constant threat to your gear's performance. To prevent this, Monster's patented **Clean Power** filter circuitry (U.S. Pat. No. 6,473,510 B1) provides separate noise isolation filtered outlets for digital, analog and high-current audio components. The result is high quality sound that's free from hums, buzzes and other power line artifacts, revealing all of the rich harmonics and tone in your recordings. Get All the Performance You Paid For™. Get Monster Pro Power.





Automated mixing & control

Imagine the feeling of touch-sensitive, automated Penny & Giles faders under your hands, and the fine-tuned twist of a V-Pot™ between your fingers. You adjust plug-in settings, automate filter sweeps in real-time, and trim individual track levels. Your hands fly over responsive controls, perfecting your mix — free from the solitary confinement of your mouse. Mackie Control delivers all this in an expandable, compact, desktop-style design forged by the combined talents of Mackie manufacturing and the MOTU Digital Performer engineering team. Mackie Control Connect brings large-console, Studio A prowess to your Digital Performer desktop studio, with a wide range of customized control features that go well beyond mixing. It's like putting your hands on DP itself.

Accurate monitoring

The Mackie HR Series Nearfield Studio Monitors are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's wide, deep and incredibly detailed. Low frequencies that are no more or less than what you've recorded. High and mid-range frequencies that are clean and articulated. Plus the sweetest of sweet spots. Whether it's the 6-inch HR-624, 8-inch HR-824 or dual 6-inch 626, there's an HR Series monitor that will tell you the truth, the whole truth, and nothing but the truth.



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The MOTU/Intel experts

When it comes to building your Intel-based MOTU recording system, nobody does it better than Sweetwater. Whether you're building a simple portable recording rig with an UltraLite and a new MacBook or a 200+ track powerhouse Digital Performer studio centered around the latest Quad Mac Pro tower, Sweetwater can help you select the perfect components for your MOTU system, from the specific MOTU audio interface model, to control surfaces and hard drives, to plug-ins and studio monitors. Even better, we can install, configure, test and ship a turnkey system straight to your door — all you'll need to do is plug in the system and start making music. Why shop anywhere else? Call the experts at Sweetwater today!



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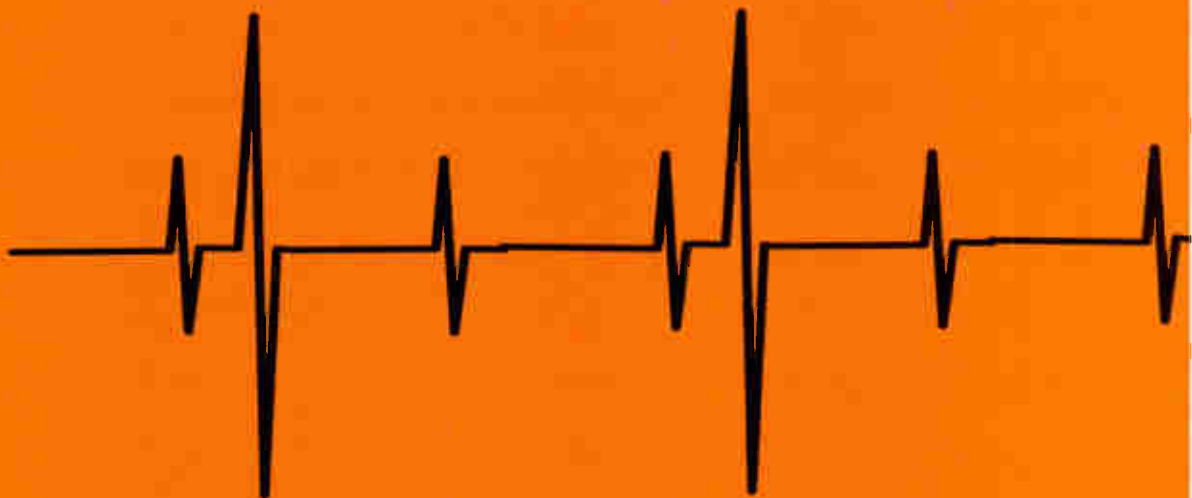
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A producer, a showman, a modern P.T. Barnum, Bill Graham was a promoter with a heart, organizing countless benefit concerts while helping to launch the careers of many of the biggest names in music. Graham, who died in 1991, is captured here in his office at the famed Fillmore Auditorium in 1968.

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